1936

STANDARD SPECIFICATIONS

FOR GRADES OF

Longleaf and Shortleaf

Southern Pine

Lumber and Timber

CONFORMING TO

American Lumber Standards

ISSUED BY THE

Southern Pine Association

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New Orleans, La., U. S. A.

EFFECTIVE JUNE 1, 1936
(Supersedes all previous issues)

55437—Form No. 36

3-12-37

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PREFACE

SOUTHERN PINE LUMBER and timber products, including timbers, laths, shingles, box shooks, paving blocks, etc., are produced in unlimited quantities by the manufacturers who are subscribers to the Southern Pine Association, whose mills are located in the States of Texas, Arkansas, Missouri, Louisiana, Mississippi, Alabama, Georgia, Florida, Virginia and North and South Carolina.

Southern Pine lumber is graded and classified according to the Standard Specifications of the Southern Pine Association as printed herein. Quotations of prices are usually made upon the basis of these Grading Rules, which in all essential features have been recognized by the lumber trade for many years.

Buyers of Southern Pine lumber are respectfully requested to familiarize themselves with these rules in order that they may know what they are contracting for when placing orders.

A list of the Subscribers to the Southern Pine Association, together with additional copies of these Grading Rules, will be furnished upon application.

SOUTHERN PINE ASSOCIATION,

New Orleans, La.

SOUTHERN PINE SERVICES

In order to give even more practical effect to the Southern Pine grading rules, and to carry out the provisions under the separate rules for Longleaf and Shortleaf material, the Southern Pine Association will gladly assist specifiers and consumers in every reasonable way to get grades and species which are specified.

The promotion and inspection forces will, in cases where buyers or specifiers are uncertain whether material is Longleaf or Shortleaf, investigate the origin of such shipments and ascertain whether species and grade specifications have been complied with.

This supervisory service is in the interest of consumers of Southern Pine products as a safeguard against substitution of grades or species, and is available to specifiers, distributors and consumers alike.

The Southern Pine Association is the one recognized agency for the grading and inspection of Southern Pine. Simplified Practice Recommendation R16-29 on "LUMBER," issued by the Bureau of Standards of the U. S. Department of Commerce, and known generally as "American Lumber Standards," says:

"Official association inspection service for the inspecting of lumber sold as of standard size and standard grade shall be available to non-members of associations upon request and at a reasonable charge.

"In case of complaint on account of the grade or tally of any shipment of standard size or standard grade, official association reinspection shall be available.

"All grading shall be done by properly supervised and qualified graders or inspectors.

"So far as it is within their power, the associations within the lumber industry shall undertake, through association grades and inspection service, arbitration, and, if practicable, through grade-marking and otherwise, to maintain for the benefit of the lumber-using public the standards of size and basic grade names and classifications as agreed upon and as published in the association grading and inspection rules."

GRADE-MARKING

The establishment of the practice of grade-marking lumber was for protection of the public. Unless grade-marking is supervised by the organization responsible for the formulation and maintenance of grading standards, the protective influence of that grade-mark is nil. A grade-mark is something more than the individual shipper's idea of the grade—it is the industry's guarantee of proper grade and is founded upon close supervision and policing by the industry's inspection department.

On this page is an illustration of the kind of grade-mark which should appear. It shows grade, mill number or name, and the characters which indicate proper supervision.

DENSITY RULE

(This Density Rule was adopted by the American Society for Testing Materials in 1933, and is here reprinted by permission. The paragraph numbers relate to A. S. T. M. Designation D 245-33.)

45. Southern Pine shall be dense, averaging on either one end or the other not less than six annual rings per inch and, in addition, one-third or more summerwood measured over a 3-inch portion of a radial line located as described below. The contrast in color between summerwood and springwood shall be sharp and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood. Coarse grained material excluded by this rule shall be accepted as dense if averaging one-half or more summerwood.

46. The radial line shall be representative of the average growth on the cross-section.

47. In case of disagreement, two radial lines shall be chosen, and the number of rings and percentage of summerwood shall be the average determined on these lines.

48. (a) Boxed-Heart Pieces. In boxed-heart pieces of Southern Pine, the measurement shall be made over the third, fourth and fifth inches from the pith along the radial line.

(b) Pith Not Present. In cases where timbers do not contain the pith, and it is impossible to locate it with any degree of accuracy, the inspection shall be made over 3 inches on an approximate radial line beginning at the edge nearest the pith in timbers over 3 inches in thickness and on the second inch nearest to the pith in timbers 3 inches or less in thickness.

(c) Pith Present, but less than 5-inch Radial Line. In material containing the pith but not a 5-inch radial line, which is less than 2 by 8 inches

in section or less than 8 inches in width, that does not show over 16 square inches on the cross-section, the inspection shall apply to the second inch from the pith. In larger material that does not show a 5-inch radial line, the inspection shall apply to the three inches farthest from the pith.

49. In inspection for density, reasonable variation of opinion between inspectors must be recognized. In reinspection of a particular lot of timbers for density, for every three timbers accepted as having one-third or more summerwood, one of the remaining timbers shall be accepted if agreed upon as having between 30 and 33-1/3 per cent summerwood.

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GRADING RULES

for

Southern Yellow Pine Lumber and Timber

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SOUTHERN PINE ASSOCIATION

To Conform to the AMERICAN LUMBER STANDARDS (Except Where Otherwise Noted)

GENERAL INSTRUCTIONS

1. Southern Pine lumber and timber shall be graded and classified according to the following rules and specifications, and dressed stock shall conform to the sub-joined tables of American Lumber Standard sizes—except where otherwise expressly stipulated between buyer and seller.

DEFINITION OF DEFECTS

2. The following definitions of defects are Southern Pine Association standards and are used in all specifications covering Southern Pine lumber and timber in any sizes:

3. A **defect** is defined as any irregularity occurring in or on wood that may lower some of its strength, durability, or utility values.

4. A **blemish** is defined as anything, not classified as a defect, marring the appearance of the wood.

5. The commonly recognized defects and blemishes occurring in Southern Pine are:

Checks	Pitch Streaks
Decay	Pith
Holes	Shakes
Imperfect Manufacture	Splits
Knots	Stain or Discoloration
Pitch	Wane
Pitch Pockets	Warp

CHECKS

6. **A check** is a lengthwise separation of the wood, which occurs usually across the rings of annual growth.

7. **A surface check** is a check occurring on the surface of a piece.

8. **A small surface check** is a perceptible opening not over 4″ long.

9. **A medium surface check** is one not over 1/32″ wide and over 4″ but not more than 10″.

10. **A large surface check** is one over 1/32″ wide and over 10″ long.

11. **An end check** is one occurring on an end of a piece.

12. **A through check** is one extending from one surface through the piece to the opposite surface or to an adjoining surface.

13. **A heart check** is one starting at the pith and extending toward but not to the surface of a piece.

DECAY

14. **Decay** is a disintegration of the wood substance due to the action of wood-destroying fungi. The words "dote" and "rot" mean the same as decay.

15. **Incipient decay** is the early stage of decay in which the disintegration has not proceeded far enough to soften or otherwise change the hardness of the wood perceptibly. It is usually accompanied by a slight discoloration or bleaching of the wood.

16. **Firm red heart** is a stage of incipient decay characterized by a reddish color produced

in the heartwood, which does not unfit the wood for the majority of yard purposes.

17. **Advanced (or typical) decay** is the older stage of decay in which the disintegration is readily recognized because the wood has become punky, soft and spongy, stringy, ring shaked, pitted, or crumbly. Decided discoloration or bleaching of the rotted wood is often apparent. Unsound red heart is a typical example of advanced decay.

HOLES

18. **Holes** in wood may extend partially or entirely through the piece and be from any cause. When holes are permitted, the average of the maximum and minimum diameters measured at right angles to the direction of the hole shall be used in measuring the size, unless otherwise stated.

19. **A pin worm hole** is one not over 1/16″ in diameter.

20. **A medium worm hole** is one over 1/16″, but not more than ¼″ in diameter.

21. **A large worm hole** is one over ¼″ in diameter.

IMPERFECT MANUFACTURE

22. **Imperfect manufacture** includes all defects or blemishes which are produced in manufacturing, such as chipped grain, loosened grain, raised grain, torn grain, skips in dressing, hit and miss, variation in sawing, miscut lumber, machine burn, machine gouge, mismatching, and insufficient tongue or groove.

23. **Chipped grain** means that a part of the surface is chipped or broken out in very short particles below the line of cut. It should not be classed as torn grain, and, as usually found, shall not be considered a defect, unless it is present in excess of 25% of the area.

24. **Loosened grain** means that a small portion of the wood has become loosened but not displaced.

25. **Torn grain** means that a part of the wood is torn out in dressing, and in depth is of 4 distinct characters: slight, medium, heavy and deep.

26. **Slight torn grain** is not over 1/32″ in depth.

27. **Medium torn grain** is over 1/32″, but not more than 1/16″ in depth.

28. **Heavy torn grain** is over 1/16″, but not more than ⅛″ in depth.

29. **Deep torn grain** is over ⅛″ in depth.

30. A **skip** is an area on a piece that failed to surface.

31. A **slight skip** is one that failed to surface smoothly, whose area does not exceed the product of the width of the piece in inches multiplied by 6.

32. **Hit and miss** is a series of skipped spots with surfaced areas between, or with skips the entire length when not over 1/16″ in depth.

33. **Variation** in sawing is a deviation from the line of cut.

34. **Slight variation** is not more than 1/16″ in 1-inch material, ⅛″ in 2″, 3/16″ in 3″ to 7″, and ¼″ in 8″ and up.

35. **Miscut lumber** is that which has a greater variation in thickness or width at different places on the piece.

36. A **machine burn** is a darkening or charring of the wood due to over-heating by machine knives.

37. A **machine gouge** is a groove across a piece due to the machine cutting below the desired line of cut.

38. **Mismatched** material is worked material that does not fit tightly at all points of contact between adjoining pieces, or in which the surfaces of adjoining pieces are not in the same plane.

KNOTS

39. **Knots** are classified according to size, form, quality, and occurrence. The average of the maximum and minimum diameters shall be used in measuring the size of knots, unless otherwise stated.

40. A **pin knot** is one not over ½″ in diameter.

41. A **small knot** is one over ½″, but not more than ¾″ in diameter.

42. A **medium knot** is one over ¾", but not more than 1½" in diameter.

43. A **large knot** is one over 1½" in diameter.

44. A **round knot** is one oval or circular in form.

45. A **spike knot** is a branch or limb sawed in a lengthwise direction.

46. A **sound knot** is solid across its face, as hard as the surrounding wood, and shows no indications of decay. It may vary in color from red to black.

47. An **unsound knot** is solid across its face, but contains incipient decay.

48. A **decayed knot** is softer than the surrounding wood and contains advanced decay.

49. A **tight knot** is one so fixed by growth or position that it will firmly retain its place in the piece.

50. An **encased knot** is one whose rings of annual growth are not intergrown and homogeneous with those of the surrounding wood. The encasement may be partial or complete.

51. A **loose knot** is one not held firmly in place by growth or position and cannot be relied upon to remain in place in the board.

52. A **pith knot** is a sound knot with a pith hole not more than ¼" in diameter.

53. A **hollow knot** is an apparently sound knot with a relatively large hole in it.

PITCH

54. **Pitch** is a poorly defined accumulation of resin in the wood cells in a more or less irregular patch.

PITCH POCKETS

55. A **pitch pocket** is a well-defined opening between rings of annual growth, usually containing, or which has contained, more or less pitch, either solid or liquid. Bark also may be present in the pocket.

56. A **very small pitch pocket** is one not over ⅛" in width and not over 2" in length.

57. **A small pitch pocket** is one not over ⅛″ in width and not over 4″ in length, or not over ¼″ in width and not over 2″ in length.

58. **A medium pitch pocket** is one not over ⅛″ in width and not over 8″ in length, or not over ⅜″ in width and not over 4″ in length.

59. **A large pitch pocket** is one whose width or length exceeds the maximum stated as permissible for a medium pitch pocket.

60. **A closed pitch pocket** is one that does not show an opening on both sides of the piece.

61. **A through pitch pocket** is one which shows an opening on both sides of a piece, and when ⅛″ or more in width, it shall be considered the same as a knot hole of equal size.

PITCH STREAKS

62. **A pitch streak** is a well-defined accumulation of pitch in a more or less regular streak.

63. **A small pitch streak** is one not over 1/12 the width by 1/6 the length of the surface on which it occurs.

64. **A medium pitch streak** is one over 1/12 but not more than 1/6 the width by over 1/6 but not more than 1/3 the length of the surface on which it occurs.

65. **A large pitch streak** is over 1/6 the width by 1/3 the length of the surface on which it occurs.

PITH

66. **Pith** is the small soft core occurring in the structural center of a log. The wood immediately surrounding the pith often contains small checks, shakes, or numerous pin knots, and is discolored; any such combination of defects and blemishes is known as heart center.

SHAKES

67. **A shake** is a lengthwise separation of the wood, which occurs usually between and parallel to the rings of annual growth.

68. **A through shake** is one extending from one surface through the piece to the opposite surface or to an adjoining surface.

SPLITS

69. A **split** is a lengthwise separation of the wood, due to the tearing apart of the wood cells.

70. A **short split** is one whose length does not exceed either the width of a piece or 1/6 its length.

71. A **medium split** is one whose length exceeds the width of a piece but does not exceed 1/6 its length.

72. A **long split** is one whose length exceeds 1/6 the length of a piece.

STAIN (or Discoloration)

73. **Stain** is a discoloration, occurring on or in lumber, of any color other than the natural color of the piece on which it appears.

WANE

74. **Wane** is bark, or the lack of wood or bark, from any cause, on the edge or corner of a piece.

WARP

75. **Warp** is any variation from a true or plane surface. It includes bow, crook, cup, or any combination thereof.

76. **Crook** is a deviation edgewise from a straight line drawn from end to end of a piece and is measured at the point of greatest distance from the straight line.

GENERAL GRADING PROVISIONS

77. Lumber is graded with reference to its suitability for the use intended. Each piece is considered and its grade determined by its general character, including the location and sum of all defects. Material not conforming to standard sizes or grades, such as intended for agricultural implement companies, wagon companies, car manufacturers, railway companies, etc., and for other special uses, shall be covered by special contract and inspection.

78. No arbitrary rules for inspection of lumber can be maintained with satisfaction. The variations from any given rule are numerous and are suggested by practical common sense; nothing more definite than the general features of different grades should be attempted by rules of inspection.

79. The grading of lumber cannot be considered an exact science, because it is based on a visual inspection of each piece, and on the judgment of the grader. The provisions of these specifications, however, are sufficiently explicit to establish 5 per cent below grade as a reasonable variation in judgment between inspectors and graders.

80. Except in Dimension, Heavy Joists and Small Timbers, the grade of yard lumber (which does not include Timbers), rough or surfaced two sides, shall be determined from the better side of the piece; lumber which is surfaced one side only shall be graded from the surfaced side; and in stock, rough or dressed two sides, or Common Boards center matched, or shiplapped and S2S, the better side shall be considered the face side.

81. The rules prescribe the number and extent of defects permitted in the **poorest** pieces admissible in each grade. A grade should be representative, however, and not made up of either high or low line pieces.

82. The number of defects permitted varies as the area of the piece to be graded increases or diminishes in respect to the basic size specified, but the size of the defects must not exceed that allowed by the grading rules.

83. When defects not described in these grading rules are encountered, they will be considered as equivalent in damaging effect to the defects specified as applying to the grade under consideration.

84. "Equivalent" means equal, and in construing and applying these rules, the defects allowed, whether specified or not, are understood to be equivalent in damaging effect to those mentioned as applying to the stock under consideration.

85. Imperfections in rough stock which can be removed in dressing to standard sizes shall not be considered in determining the grades under these rules.

86. Defects admissible in rough stock shall be the same as those applying to dressed stock of like kind and grade, and, in addition, such other defects as will disappear in dressing the stock to standard sizes shall be allowed.

87. Imperfect manufacture in dressed stock, such as torn grain, loosened grain, raised grain, skips in dressing, wane, broken knots, mismatching, insufficient tongue, groove, or lap, etc., shall be considered defects, and will reduce the grade according as they are slight or serious in the effects on the use of the stock.

88. When special grades or patterns of lumber are ordered, unless a special agreement is made, it shall be permissible to ship all of the lower grades that develop in their manufacture, at the proper differential in prices for such grades, provided that they do not exceed 20 per cent of the quantity shipped.

89. The term "close grain" shall mean an average of not less than 6 annual rings to the inch.

90. Southern Pine Flooring shall be classified as to grain, as Vertical (Edge) Grain and Flat (Slash) Grain. Flooring shall be considered Vertical Grain when the rings (so-called grains) form an angle of 45 degrees or more with the surface of the piece and when there is an average of at least six rings per inch on the face. When the angle becomes less than 45 degrees at any point, the flooring may be classed as Flat (Slash) Grain or Near-Rift (see Rules on Flooring.)

"Straight grain" must not be confused with "vertical grain." Vertical grain is described in Paragraph 90. In a straight grain piece the grain will not run out at the edge from a point within 1″ of the edge and within a longitudinal measurement of 20″.

91. **Heart and Sap:** Heart face material is that which shows all heartwood on the face side.

92. Orders for material under a heartwood specification, other than heart face or all heart,

shall state the amount or percentage of heartwood desired and how it shall be measured, either girth measurement or facial area.

93. Material ordered under a cubical content heart specification shall be covered by special contract and inspection.

94. Material shipped under a heartwood, sapwood, or grain classification shall conform to the specifications for such material in addition to the provisions covering admissible defects.

95. Bright sapwood shall not be considered a defect in any of the grades provided for and described in these rules. The restriction or exclusion of bright sapwood constitutes a class of material which can only be secured by special contract.

96. Stain, such as usually occurs in the drying process, or which occurs as a result of shipping lumber green, when so ordered, shall not be considered a defect excepting where limitations are specifically stated in a grading rule.

NOTE: Blue stain is not decay nor incipient decay. It occurs in sapwood if not dried rapidly enough, and is only harmful to appearance if not painted.

97. Firm red heart shall not be considered a defect except where limited in a grading rule.

98. Mixed grades (other than B&Btr), not specifying the proportion of each grade, are not Southern Pine standard grades.

YARD AND INDUSTRIAL SIZES

Dressed Sizes

99. The terms "standard yard board," "standard industrial board," "standard yard dimension" and "standard industrial dimension" are the designations for 1″ boards and 2″ dimension, respectively.

100. 25/32″, S1S or S2S (measured at Southern Pine Association moisture content) shall be the thickness for the standard yard board; 26/32″, S1S or S2S, for the standard industrial board.

101. 1⅝″, S1S or S2S (measured at Southern Pine Association moisture content) shall be the

thickness for standard yard dimension not more than 12″ wide; 1¾″, S1S or S2S, for standard industrial dimension.

102. The widths of Finish S1E or S2E (based on kiln dried lumber) shall be ⅜″ off on lumber of nominal width of 3″ to 7″ inclusive, ½″ off on lumber of nominal widths of 8″ to 12″, inclusive, and ⅝″ off on lumber of nominal widths greater than 12″. The widths of Common Boards, Strips and Dimension S1E or S2E (measured at proper moisture content) shall be ⅜″ off on lumber of nominal widths less than 8″ and ½″ off on lumber of nominal widths of 8″ to 12″. (It is noted that finished widths of Finish and Common Boards are the same in Southern Pine.)

103. The thicknesses and widths of lumber which is S1S or S2S and/or S1E or S2E, and for D&M and Shiplap are to be found under the description of each item of lumber.

104. In tongued and grooved Flooring and Ceiling 5/16″, 7/16″, and 9/16″ thick, board measure, the tongue shall be 3/16″ wide, and over-all widths 1/16″ less than shown in table of sizes in each grade rule, and in shiplapped Ceiling of the same thickness, the lap shall be ⅛″ wide, and the over-all width ⅛″ less than shown in table of sizes in each grade rule. (See cuts on pages 97 and 98.)

105. In all other patterned material, 11/16″, ¾″, 1″, 1¼″, and 1½″ thick, board measure, the tongue shall be ¼″ wide in tongued and grooved lumber, and the lap ⅜″ wide in shiplapped lumber, with the over-all widths as shown in table of sizes in grade rule. (See cuts on pages 96, 106, 109 to 117.)

Rough Dry Sizes

106. The standard rough dry thickness of the Standard Yard Finish, Common Boards, and Strips, 1″, board measure, shall be not less than 29/32″ with an allowance of 20 per cent of the shipment, which may be not less than 28/32″, and the standard rough dry thickness of the Standard Industrial Finish, Common Boards and Strips shall be not less than 30/32″ with an allowance of 10 per cent of the shipment, which may be not less than 29/32″.

107. The standard rough dry thickness of Finish, Common Boards, Strips, and Dimension of standard sizes 1¼″ and thicker, board measure, shall be not less than ⅛″ thicker than the corresponding Standard finished dry thickness, with an allowance of 20 per cent of the shipment, which may be not less than 3/32″ thicker than the corresponding standard finished dry thickness.

108. The widths of Finish, Common Boards, Strips and Dimension, rough and at proper dryness, 7″ and narrower, shall be not more than ¼″ less than the nominal widths, and the widths 8″ to 12″ board measure shall be not more than ⅜″ less than the nominal widths.

109. Heavy Joists, rough, green or commercially dry, must not be over ¼″ scant in width or thickness.

110. Finish, Boards, Strips, Dimension, and Heavy Joists, ordered rough, if thicker than count thickness for dry or green stock, may be dressed to such count thickness, and when so dressed shall be considered as rough stock.

111. In shipments of rough Finish, Common Boards, Strips, and Dimension, pieces ½″ or more above the count thickness, such as may be produced by uneven sawing, may, at the option of the buyer, be rejected, or accepted as the next lower grade.

LENGTHS

112. Except as may be hereinafter specified, standard lengths for Boards, Strips, Dimension and Joists are 4′ to 20′, inclusive, in multiples of 2′; and for Finish, Flooring, Ceiling, Siding, Partition, Casing, Base, Window and Door Jambs, etc., 4′ to 20′, inclusive, in multiples of 1′. Longer or shorter lengths than those herein specified are special. Special fractional lengths, when ordered, will be counted as the next higher standard length.

113. The following enumerated odd lengths in Dimension shall be standard:

2″x4″, 6″ and 8″. 9′ and 11′.
2″x8″ and 10″. 13′.
2″x10″. 15′.

114. Unless otherwise specifically agreed upon, the proportion of short lengths allowed in the various grades may be included in all shipments; however, it should be understood that an order reading "10′ to 20′," or any other combination of lengths, where minimum and maximum lengths are specified, will not permit of the inclusion of any lengths shorter or longer than those specified in the order.

DESCRIPTION, MEASUREMENT AND TALLY

115. The thickness and widths of yard lumber, as specified under the descriptions of items, shall be considered standard. All other sizes shall be considered special. Yard lumber of Standard Yard and Standard Industrial sizes shall be described by those standard dimensions.

116. Lumber of Standard Yard and Standard Industrial size shall be tallied Board Measure. On lumber of standard thickness less than 1″ (board measure), the board-foot measurement shall be based on the surface dimensions.

117. The board measurement of dressed lumber of Standard Yard and Standard Industrial size shall be based upon the corresponding nominal dimensions of rough green lumber.

118. Lumber finished to special size shall be counted (tallied) as of the standard rough size (known as "nominal") necessarily used in its manufacture.

119. The actual thickness and width of lumber shipped, when not of Standard Yard or Standard Industrial size, shall be indicated on the invoice.

120. Material shipped on stock sizes shall be tallied by the number of pieces of each size and length in the shipment.

121. In shipments measured on board measure, a piece tally in board feet shall be made.

122. In material measured with a board rule on actual widths, pieces measuring to the even ½′ shall be alternately counted as of the next higher and lower foot count; fractions below the ½′ shall be dropped and fractions above the ½′ shall be counted as of the next higher foot.

123. The average length of a shipment of lumber shall be computed by dividing the total length in feet by the total number of pieces in a shipment.

124. The average width of a shipment of lumber 1″ or less in thickness, shall be computed by dividing the total board feet by the total length in feet and multiplying the result by 12. The total board foot tally of lumber thicker than 1″ shall be divided first by the thickness as expressed in inches, and fractions of an inch.

MOISTURE CONTENT PROVISIONS

The following provisions for moisture content are made an integral part of these rules:

Kiln Dried

125. For C or better grades of Lumber—4/4″ and 5/4″—kiln dried, the moisture content shall not exceed 12% in 90% of the pieces of a shipment or an item of a shipment, and the remainder shall not exceed 15%.

126. For C or better grades of Lumber—6/4″ and 8/4″—kiln dried, the moisture content shall not exceed 14% in 90% of the pieces of a shipment or an item of a shipment, and the remainder shall not exceed 17%.

127. For No. 1, No. 2 and No. 3 Common Lumber less than 2″ nominal thickness—kiln dried, the moisture content shall not exceed 15% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 18%.

128. For No. 1 and No. 2 Lumber, 2″ nominal thickness—kiln dried, the moisture content shall not exceed 15% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 18%.

Air Dried

129. If, and when C or a better grade of lumber 4/4″ and 5/4″ is air dried, the moisture content shall not exceed 16% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 19%.

130. If, and when C or a better grade of lumber 6/4″ and 8/4″ is air dried, the moisture content shall not exceed 18% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 21%.

131. For No. 1, No. 2 and No. 3 Common Lumber less than 2″ nominal thickness—air dried, the moisture content shall not exceed 19% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 22%.

132. For No. 1 and No. 2 Lumber of 2″ nominal thickness—air dried, the moisture content shall not exceed 19% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 22%.

Inspection and Shipping

133. These moisture content provisions apply at the time of loading the lumber.

134. Purchasers desiring stock of a specific moisture content, higher or lower than the figures given herein, may obtain it by ordering it special, and such a shipment shall be considered not as having been manufactured under these rules, but as a special contract.

135. In case of complaint on account of the dryness of any shipment of Southern Pine lumber, official Association inspection will be available to subscribers and non-subscribers upon request. Such inspections for dryness will be made in accordance with the maxima allowable under these rules; inspection service for special moisture content limitations shall be rendered only when the exact specifications are furnished to the inspector.

136. In case the buyer wishes inspection as to moisture content, he shall notify the shipper within twenty-four hours after the lumber is unloaded. All lumber on which complaint is made as to moisture content must be fully protected from the weather; no inspection will be made if, upon the arrival of the inspector, there is evidence that these provisions have not been strictly complied with.

137. If, as a result of an official Association inspection, it should be found that some of the pieces of a shipment, or an item, exceed the max-

imum moisture content allowable herein, such pieces shall be considered as of the next lower grade. It is understood that an item of a shipment will consist of a grade and size, without reference to lengths, except in the case of Dimension that is ordered in quantities of specified lengths.

INSPECTION AND SHIPPING

138. When stock is bundled, each length shall be bundled separately, except as hereinafter specified.

139. Unless otherwise stated in the contract of purchase, yard lumber (except Lath) shall be double end-trimmed with a tolerance of not to exceed 3 inches in excess of the nominal length.

140. Lumber must be accepted on grade in the form in which it is shipped. Any subsequent change in manufacture, mill work, or dry kilning, will prohibit an inspection for the adjustment of claims, except with the consent of all parties interested.

141. In case of complaint involving measurement, the entire shipment shall be held intact for re-measurement.

142. In case of complaint on account of the grade or tally of any shipment of Standard Yard or Standard Industrial size or Standard grade, official Association reinspection is available to subscribers and non-subscribers upon request, and at a reasonable charge.

143. Official Association inspection service shall not be required to be furnished for the inspection of "special" grades of lumber not recognized in published grading rules of the Southern Pine Association; inspection service for "special" grades shall be furnished only when the exact specifications of such grades, in writing, are furnished to the inspector.

144. Where buyers demand and will pay the cost thereof, a certificate made by an official inspector of this Association will be furnished with each shipment so arranged for, with the understanding that such inspection and certificate will be final.

145. Upon receipt of complaint from the purchaser, the seller should immediately request the Southern Pine Association to provide official re-inspection or re-measurement, as the case may be, according to rules in effect at the time of execution of contract; and the purchaser shall lend all reasonable assistance to facilitate the re-inspection or re-measurement.

146. In case of complaint regarding grade but not involving measurement (tally), the buyer is required to accept that portion of a shipment of lumber of Standard grade or Standard Yard or Standard Industrial size, which is up to grade or of Standard Yard or Standard Industrial size, as the case may be, holding intact that portion thereof, the grade or size of which is in dispute, for official Association inspection; the action on the part of the buyer in accepting and using such portion of the shipment shall not be construed as his acceptance of the entire shipment; further, the buyer shall pay in accordance with the terms of sale for that portion which he accepts, but acceptance by the buyer of a part of a shipment does not prejudice his just claim on account of any unused material that is alleged by him to be below Standard grade or not of Standard Yard or Standard Industrial size. The complainant buyer shall hold disputed material intact, properly protected, for not exceeding 30 days, and shall file complaint with seller within 10 days from receipt of shipment.

147. A shipment or an item of a shipment shall be considered as of the grade invoiced if, upon official Association re-inspection under the grading and inspection rules under which the lumber has been graded and sold, 95% thereof or more is found to be of said grade, the material below said grade to be accepted by the buyer as of its actual grade. Where the de-grades are in excess of 5% of the item, or shipment, or where the de-grades are found upon official reinspection to be more than one grade lower than the grade invoiced, the de-grades shall be the property of the seller. These provisions shall not apply in the case of specially worked lumber.

148. The expense of such re-inspection shall be borne by the shipper if the item complained

of is found to be more than 5% below grade; if 5% or less, the expense of such inspection shall be borne by the buyer; but in either case the person calling for the re-inspection shall be responsible to the Association for the cost thereof.

149. The official grading, inspection and marking of lumber is recognized in American Lumber Standards and in the National code as the function of the regional associations of manufacturers which formulate and maintain rules and standards for their respective species. For economy and efficiency, lumber should be officially graded and marked. The un-official grading, re-grading and marking of lumber in process of distribution is confusing, facilitates deception, is not in the interest of public confidence, and has already been condemned by the industry.

150. So far as it is within its power, the Southern Pine Asscciation has undertaken, through Association grades and inspection service, arbitration, grade marking, and otherwise, to maintain for the benefit of the lumber-using public, the standards of size and grade as agreed upon in American Lumber Standards and as published in these grading and inspection rules. Further, the individual subscribers to this Association will maintain, and this Association assumes responsibility for the maintenance by them in the manner herein prescribed, of said size and inspection standards of the American Lumber Standards.

151. Lumber manufactured, graded, measured, and described, as herein provided, shall be considered American Standard lumber. The purchase, sale, or shipment of lumber as American Standard is construed as involving agreement to submit to official Association inspection any complaint involving either sizes or grades.

152. Sales contracts should incorporate in substance the following clause:

> "Shipment under this contract shall be in accordance with the American Lumber Standards as adopted by the Southern Pine Association."

In the case of shipments made or received under such contracts, exemption from any provision

thereof shall be by special agreement and the burden of proof thereof shall be upon persons claiming exemption.

GRADES OF YARD LUMBER

153. The term "Yard Lumber" as herein used means lumber that is manufactured and classified into those sizes, shapes, and grades required for ordinary construction and general purpose uses. Heavy timbers for structural purposes, softwood factory lumber, and other special-use materials are not considered yard stock. In the rules of this Association the following are considered yard lumber: Finish, rough or dressed; Common Boards and Strips, rough, S1S, S1S&1E, S2S, or S4S; Dressed and Matched, Shiplap, Grooved Roofing, Barn Siding, Flooring, Ceiling, Drop and Bevel Siding, Partition, Moulded Casing and Base, Window and Door Jambs, Moulding, Dimension, Heavy Joists, Lath and Shingles.

154. Yard lumber is divided into two main divisions: (a) Select and (b) Common. These are again divided into two classes, Select lumber into (1) that suitable for natural finishes and (2) that suitable for paint finishes; Common lumber into (1) that which can be used without waste and (2) that which permits some waste. Each of these is further divided as hereinafter described.

FINISH

155. The grades of Finish are based on a piece 8″ wide by 12′ long, or a piece having 8 square feet, nominal surface measure; on this basis, larger or smaller pieces will admit a proportionate number of defects.

156. **Grades:** A, B, and C.

157. **Lengths:** Standard lengths are 8′ to 20′, inclusive, and in shipments of standard lengths, 5% of 8-foot in "C" and better grades shall be permissible.

The above percentage of short lengths is customary, and in the interest of conservation, will be included, so far as practical, in all shipments of standard lengths.

158. Sizes: Southern Pine standard thicknesses and widths for Finish are as follows:

Size, Nominal		Dressed Dimensions		
Thickness *Inches*	Width *Inches*	Thickness *Inches*	Thickness *Inches*	Width *Inches*
.....	3	5/16	.....	2 5/8
.....	4	7/16	.....	3 5/8
.....	5	9/16	.....	4 5/8
.....	6	11/16	.....	5 5/8
1	7	25/32	26/32	6 5/8
1¼	8	1-1/16	.....	7 1/2
1½	9	1-5/16	.....	8 1/2
1¾	10	1-7/16	.....	9 1/2
2	11	1 5/8	1-6/8	10 1/2
2½	12	2 1/8	.....	11 1/2
3	over 12	2 5/8	.....	off 5/8

(Note: The above widths for Finish are greater than American Lumber Standards.)

159. Special Provisions: The following amount of crook, based on 16-foot lengths, shall be permissible in all grades of Finish:

1″ and 1¼″ x 3″ ..... 3″
1″ and 1¼″ x 4″ ..... 2½″
1″ and 1¼″ x 5″ and 6″ ..... 2″
1″ and 1¼″ x 7″ and 8″ ..... 1¾″
1″ and 1¼″ x 9″ and 10″ ..... 1¼″
1″ and 1¼″ x 11″ and 12″ ..... 1″

For 1½″ thickness, crook ½″ less than above is permissible; for 2″ thickness the crook may be ½ of the table above. Pieces longer or shorter than 16′ may have proportionate amounts of crook.

160. Based on a piece 12″ wide, ¼″ cup shall be permissible in all grades of Finish. Narrower or wider pieces may have proportionate amounts of cup.

161. In case both sides are desired A, B, or C grade, or free from all defects, special contract must be made. Defective dressing or slight skips in dressing, on the reverse side of Finish, are admissible. (See "B" and "C" grades.)

162. Moisture Content: The moisture content provisions for "C" or better Lumber, kiln-dried, are:

In 4/4″ and 5/4″ the moisture content shall not exceed 12% in 90% of the pieces of a shipment, or

an item of a shipment, and the remainder shall not exceed 15%.

In "C" or better Lumber 6/4" and 8/4" the moisture content shall not exceed 14% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 17%.

If and when "C" or better Lumber 4/4" and 5/4" is air-dried, the moisture content shall not exceed 16% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 19%.

If and when "C" or better Lumber 6/4" and 8/4" is air-dried, the moisture content shall not exceed 18% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 21%.

163. **"A" Finish,** up to and including 12" width, must show one face practically clear of all defects except it may have such wane as would dress off if surfaced four sides.

"A" Finish, 13" and wider, will admit two small defects or their equivalent.

164. **"B" Finish** will admit, in addition to one split in end which should not exceed in length the width of the piece, two or combination of two of any of the following defects or their equivalent: small surface checks; slight torn grain; three pin knots; two small knots; three very small pitch pockets; two small pitch pockets; two small pitch streaks; not to exceed 5% stain on 10% of a shipment; not to exceed 5% firm red heart; wane 1" in width, ¼" in depth, and 1/6 the length of the piece.

In "B" Finish the reverse side may grade no lower than No. 1 Common board grade.

165. **"C" Finish** will admit, in addition to one split in end which should not exceed in length the width of the piece, two or combination of two of any of the following defects or their equivalent: seasoning checks that do not show an opening through the piece; pin worm holes, four per surface foot; medium torn grain; six pin knots; four small knots; one medium knot; six very small pitch pockets; four small pitch pockets; two

medium pitch pockets; two medium pitch streaks; pith, not exceeding ¼″ in width by 3″ in length; slight shake, equal in length to width of piece; 25% firm red heart; not to exceed 15% stain on 10% of the pieces of a shipment; wane 1″ in width, ½″ in depth, and 1/3 the length of the piece.

Defective dressing or slight skips in dressing, that will not prevent its use as Finish without waste will also be allowed.

The reverse side of "C" Finish may grade no lower than No. 1 Common board grade.

MOULDED CASING AND BASE, WINDOW AND DOOR JAMBS

166. **Moulded Casing and Base** shall be worked to the American Lumber Standard sizes and patterns shown in "Standard Wood Mouldings, 7000 Series," revised 1931.

Window and Door Jambs will be dressed, rabbetted, and plowed as ordered.

167. **Grades:** A, B, and C.

168. **Casing, Base, and Jambs** will admit the same defects as are admissible in Finish of the same grades, except wane.

169. **Special Trim:** Standard lengths of "cut to length" trim shall be 1′ to 7′-11″ and shall be counted net lengths in breaks of 1″; the general practice now being to place this in three brackets, 4′ and under; 4′-1″ to 6′; 6′-1″ to 7′-11″.

MOULDINGS

170. **Moulding** shall be worked to the American Lumber Standard sizes and patterns shown in "Standard Wood Mouldings, 7000 Series," revised 1931.

171. **Lengths:** Standard lengths are 6′ and longer, and in shipments of standard lengths, 5% of 6 and/or 7-foot shall be admitted, even though the number of feet of each length be specifically stated.

172. **Grade:** "B and Better."

173. **"B and Better" Moulding** shall be well manufactured and 1/3 of the pieces of any item

may contain any one of the following defects or its equivalent: Three pin worm holes; slight defects in dressing; one pin knot; one very small pitch pocket; pitch 1″ wide by 6″ long or its equivalent in pitch streaks.

FLOORING

174. The grades of Flooring are based upon a piece 4″ wide by 12′ long, or a piece having 4 square feet, nominal surface measure; on this basis, larger or smaller pieces will admit a proportionate number of defects.

175. **Grades:** A, B, C, D, No. 1 Common, No. 2 Common, and No. 3 Common, Flat Grain; and A, B, C, D, No. 1 Common, and No. 2 Common, Vertical Grain.

176. **Lengths:** Standard lengths are 4′ to 20′, inclusive, and the following percentages of short lengths may be included in all standard length shipments:

A and B	5%	8 and/or 9-foot
C, D, and No. 1 Com.	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
No. 2 Common	5%	4 and/or 5-foot
	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
No. 3 Common	Not to exceed 20%	4 and 6-foot lengths.

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practical in all shipments of standard lengths.

177. **Dressed Sizes:** In Flooring the following are finished worked sizes at proper dryness:

Nominal Thickness *Inches*	Nominal Width *Inches*	Thickness *Inches*	Face Width *Inches*	Over-all Width *Inches*
.....	2	(a) 5/16	1½	1¾
.....	3	(a) 7/16	2⅝	2⅝
.....	4	(a) 9/16	3¼	3½
1	.....	25/32	.....	.....
1¼	.....	1-1/16	.....	.....
1½	.....	1-5/16	.....	.....

(a)—See Paragraph 104.

178. **Special Provisions:** The following amount of crook, based on 16-foot lengths, shall be permissible in No. 1 Common and better grades of Flooring:

3″ widths.....3½″ crook.
4″ widths.....3″ crook.

Lengths longer or shorter than 16′ may have proportionate amounts of crook.

179. Mismatch, due to change in moisture content, not to exceed 1/32″ shall be permissible in C and better Flooring.

Variation in width not to exceed 1/32″ will be permissible in B Flooring, and not to exceed 1/16″ in C and D Flooring.

180. Medium knots shall not exceed 1¼″ in diameter in 3″ Flooring.

181. Pieces of Flooring with 3/16″ or more of tongue will be admitted in any grade.

Pieces of Flooring having not less than 1/16″ of tongue will be admitted in No. 2 Common.

182. In D and better grades of Flooring, wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece, is admissible, provided the wane does not extend into the tongue or groove; it may, however, extend into the groove or for ½ the thickness of the tongue for a length of 10″, provided the maximum width and length decrease in proportion to the increase in depth.

183. Southern Pine Flooring shall be classified as to grain, as Vertical (Edge or Rift) Grain and Flat (Slash) Grain. Material shall be considered Vertical Grain when the rings (so-called grains) form an angle of 45 degrees or more with the surface of the piece and has an average of six rings per inch across the face at every point. When the angle becomes less than 45 degrees at any point, the material shall be classed as Flat (Slash) Grain, or Near Rift.

184. "Near Rift" Flooring shall consist of pieces that do not comply with the ring specifications for Edge Grain (Vertical Grain) Flooring; and in addition pieces that show only one edge of the grain on the face but forming an angle of less than 45° with the surface, but such pieces must

show an average of six or more rings to the inch anywhere across the face of the piece.

185. **Standard Workings:** The standard working of Flooring, 1″, 1¼″, and 1½″ thick, 4″ and under in width, shall be S2S, Standard Matched (SM) and scratched or hollowed back, with tongue and groove located 7/32″ from bottom of piece; groove being 9/32″ wide and 10/32″ deep, the lower lip being recessed so that it is 1/32″ inside of a line perpendicular to the face, the reverse side thus being 1/32″ narrower than the face side; the tongue is 8/32″ long, tapering from 9/32″ thickness at the body of the piece to 2/32″ less near end of tongue. (See cut on page 96.)

186. **Moisture Content:** The moisture content provisions for "C" or better Flooring, kiln-dried, are: In 4/4″ and 5/4″ the moisture content shall not exceed 12% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 15%.

In "C" or better Flooring 6/4″ the moisture content shall not exceed 14% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 17%.

If and when "C" or better Flooring 4/4″ and 5/4″ is air-dried, the moisture content shall not exceed 16% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 19%.

If and when "C" or better Flooring 6/4″ is air-dried, the moisture content shall not exceed 18% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 21%.

For No. 1, No. 2 and No. 3 Flooring, kiln dried, the moisture content shall not exceed 15% in 90% of the pieces of a shipment, and the remainder shall not exceed 18%. In the same grades of Flooring, air dried, the moisture content shall not exceed 19% in 90% of the pieces of a shipment, and the remainder shall not exceed 22%.

187. **"A" Flat Flooring** must be practically free from defects on the face side and well manufactured.

188. **"B" Flat Flooring** will admit 2 or combination of 2 of any of the following defects or

their equivalent: small surface checks; 4 pin worm holes; slight torn grain; 3 pin knots; 2 small knots; 3 very small pitch pockets; 2 small pitch pockets; 3 small pitch streaks; not to exceed 15% firm red heart; not to exceed 5% stain.

189. **"C" Flat Flooring** will admit 2 or combination of 2 of any of the following defects or their equivalent: surface checks; 12 pin worm holes; medium torn grain or other machine defects that will lay without waste; 6 pin knots; 4 small knots; 2 medium knots; 6 very small pitch pockets; 4 small pitch pockets; 2 medium pitch pockets; 2 medium pitch streaks, or their equivalent; slight shake that does not go through; not to exceed 25% firm red heart; not to exceed 15% stain.

190. **"D" Flat Flooring** will admit the following defects or their equivalent: surface checks; limited number of pin worm holes, well scattered; loosened or heavy torn grain, or other machine defects that will lay without waste; sound knots, not over ½ of the cross-section of the piece in the rough; 3 pith knots; pitch pockets; pitch; pith, not exceeding 6″ in length; shake that does not go through; short split, equal in length to width of piece; firm red heart; 15% stain.

191. **No. 1 Common Flooring** is the combined grades of "C" and "D" Flooring, and will admit all pieces that will not grade "B", and are better than No. 2 Common.

192. **No. 2 Common Flooring** will admit all pieces that will not grade as good as "D" Flooring, which can be used for cheap floors without a waste of more than 10% of the length of any one piece.

193. **No. 3 Common Flooring** will admit all pieces that cannot be used as No. 2 Common Flooring, but are suitable for use as cheap sheathing or lathing, without a waste of more than ¼ the length of any one piece.

194. **Vertical Grain Flooring** shall be graded under the same rules as Flat grain, except as to the angle of the grain. (See Paragraph 183.)

195. **Heart Face Flooring** (whether Flat or Vertical) shall be free from sapwood on the face side.

END-MATCHED FLOORING

196. **Grades:** First Grade Flat Grain, Second Grade Flat Grain, Third Grade Flat Grain, Fourth Grade Flat Grain, First Grade Edge Grain, Second Grade Edge Grain, Third Grade Edge Grain.

197. **Lengths:** Standard lengths of End-Matched Flooring shall be 2′ to 16′, inclusive, nested in bundles 8′ and longer in multiples of 1 foot. The nominal length of End-Matched Flooring shall be averaged to the nearest foot, except that 19″ shall be the minimum length in First, Second and Third Grades, and 12″ shall be the minimum in Fourth Grade. (Example: The 7-foot lengths are above 6′-6″, to and including 7′-6″.)

198. **Bundling:** The standard bundle of 1x3 and 1x4 End-Matched Flooring shall be in 1 or 2 tiers of 6 courses each.

199. **Special Provisions:** Pieces of End-Matched Flooring, 1x3 and 1x4—10′ long, will admit 1″ crook; lengths longer or shorter than 10′ may have a proportionate amount of crook.

200. Mis-Match, due to change in moisture content, not to exceed 1/32″ shall be permissible in all grades of End-Matched Flooring. Variations in width not to exceed 1/32″ will be permissible in First and Second Grades, and not to exceed 1/16″ in Third and Fourth Grades.

201. Pieces of End-Matched Flooring with tongue not less than 3/16″ in width, will be admitted in any grade. Pieces of End-Matched Flooring having not less than 1/16″ width of tongue will be admitted in Fourth Grade.

202. In First, Second and Third Grades of End-Matched Flooring, wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece, is admissible, provided the wane does not extend into the tongue or groove; it may, however, extend into the groove, or for ½ the thickness of the tongue, provided the maximum width and length decreases in proportion to the increase in depth.

203. End-Matched Flooring shall be classified as to grain, as Edge (Vertical) Grain, and Flat Grain. Material shall be considered Edge Grain

when the rings (so-called grains) form an angle of 45 degrees or more with the surface of the piece, and there is an average of 6 rings across the face at any point. When the angle becomes less than 45 degrees at any point, the material shall be classed as Flat Grain, or Near Rift.

204. Near Rift Flooring shall consist of pieces that do not comply with the ring specifications for Edge Grain (Vertical Grain) Flooring; and in addition pieces that show only 1 edge of the grain on the face but forms an angle of less than 45° with the surface, but such pieces must show an average of 6 or more rings to the inch anywhere across the face of the piece.

205. Except as noted, General Instructions, Grading Provisions, Inspection and Shipping Provisions shall apply alike, to both End-Matched and Plain-end lumber.

Moisture Content provisions applicable to plain-end Flooring are also applicable to End-matched Flooring, as follows: The provisions for C grade of plain-end Flooring shall apply to First and Second Grades End-Matched, and the provisions for the common grades of plain-end Flooring shall apply to the Third and Fourth Grades of End-Matched Flooring.

206. **First Grade End-Matched Flooring** shall be well manufactured and practically free from defects on the face side that will materially mar the appearance of the finished floor, or impair its durability, but 20% of a shipment will admit of small spots of discoloration and an occasional sound tight pin knot, not to exceed ¼" in diameter; an occasional pin worm hole without discoloration.

207. **Second Grade End-Matched Flooring** will admit the following defects, or their equivalent: Small surface checks; 4 pin worm holes; slight torn grain; small, sound, tight knots; small pitch pockets; small pitch streaks; 5% firm red heart; 5% light stain.

208. **Third Grade End-Matched Flooring** will admit surface checks; a limited number of pin worm holes, well scattered; heavy torn grain, or other machine defects that will lay without waste; sound knots, not over ½ the cross section of the

piece in the rough; pitch pockets; pitch, not to exceed 25% of the area of the piece; pith not to exceed 3″ in length; slight shake that does not go through; firm red heart; stain.

209. **Fourth Grade End-Matched Flooring** will admit of all pieces not as good as Third Grade, but which may be used for cheap sheathing or sub-flooring purposes.

WAGON BOTTOMS

210. **Wagon Bottoms,** unless otherwise ordered, shall be made in sets of 38″ and 42″ face width, and from stock 4″ or over in width, board measure. The standard thickness shall be 25/32″.

211. **Grades:** A and B.

212. **Wagon Bottoms,** unless otherwise ordered, shall be graded under the rules for "A" and "B" Flat Flooring.

CEILING

213. The grades of Ceiling are based upon a piece 4″ wide by 12′ long, or a piece having 4 nominal square feet, surface measure; on this basis, larger or smaller pieces will admit a proportionate number of defects.

214. **Grades:** A, B, No. 1 Common, No. 2 Common, and No. 3 Common.

215. **Lengths:** Standard lengths are 4′ to 20′, inclusive, and the following percentages of short lengths may be included in all standard length shipments.

A and B	5%	8 and/or 9-foot
No. 1 Common	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
No. 2 Common	5%	4 and/or 5-foot
	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
No. 3 Common	Not to exceed 20%	4 and 6-foot lengths.

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practical, in all shipments of standard lengths.

216. **Dressed Sizes:** The dressed dimensions of Ceiling at commercially dry shipping weight are as follows:

Nominal Thickness *Inches*	Nominal Width *Inches*	Thickness *Inches*	Face Width *Inches*	Over-all Width *Inches*
.....	3	(a) 5/16	2⅜	2⅝
.....	4	(a) 7/16	3¼	3½
.....	5	(a) 9/16	4¼	4½
.....	6	11/16	5-3/16	5-7/16

(a)—See Paragraph 104.

217. **Special Provisions:** The following crook, based on 16-foot lengths, shall be permissible in No. 1 Common and better grades of Ceiling.

3″ widths.....3½″ crook.
4″ widths.....3″ crook.
6″ widths.....2½″ crook.

Lengths longer or shorter than 16′ may have proportionate amounts of crook.

218. Pieces of Ceiling with tongue not more than 1/16″ scant of standard width will be admitted in any grade. Pieces of Ceiling having not less than 1/16″ tongue or lap will be admitted in No. 2 Common.

219. In No. 1 Common and better grades of Ceiling, wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece, is admissible, provided the wane does not extend into the tongue or groove; it may however, extend into the groove or for ½ the thickness of the tongue for a length of 10″, provided the maximum width and length decrease in proportion to the increase in depth.

220. **Standard Workings:** The bead on all Ceiling and Partition shall be depressed 1/32″ below the surface of piece. (See cuts on pages 96 to 98.)

221. **Moisture Content:** The moisture content provisions for B and Better ceiling, kiln-dried, are:

In 4/4″ the moisture content shall not exceed 12% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 15%.

If and when "B" and Better Ceiling 4/4" is air-dried, the moisture content shall not exceed 16% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 19%.

For No. 1, No. 2 and No. 3 Ceiling, kiln-dried, the moisture content shall not exceed 15% in 90% of the pieces of a shipment, and the remainder shall not exceed 18%. In the same grades of Ceiling, air-dried, the moisture content shall not exceed 19% in 90% of the pieces of a shipment, and the remainder shall not exceed 22%.

222. **"A" Ceiling** must be practically free from defects on the face side and well manufactured.

223. **"B" Ceiling** will admit 2 or combination of 2 of any of the following defects or their equivalent: Small surface checks; six pin worm holes; slight torn grain; 3 pin knots; 2 small knots; 3 very small pitch pockets; 2 small pitch pockets; 2 small pitch streaks; not to exceed 15% firm red heart; not to exceed 15% stain.

224. **No. 1 Common Ceiling** will admit the following defects or their equivalent: Surface checks; limited number of pin worm holes, well scattered; loosened or heavy torn grain, or other machine defects that will lay without waste; sound knots, not over ½ the cross-section of the piece in the rough; pitch pockets; pitch; pith, not exceeding 6" in length; shake that does not go through; short split, equal in length to width of piece; firm red heart; stain not to exceed 15%.

Pieces otherwise as good as "B" Ceiling may have 1 defect, such as a knot hole, that can be cut out by wasting not to exceed 2" of their length, provided both pieces are 32" or over in length after cutting out such defects.

225. **No. 2 Common Ceiling** will admit all pieces that will not grade as good as No. 1 Common Ceiling which can be used for cheap ceiling without a waste of more than ¼ the length of any one piece.

226. **No. 3 Common Ceiling** will admit all pieces that cannot be used as No. 2 Common Ceiling, but are suitable for use as cheap sheathing or crating material without a waste of more than ¼ the length of any one piece.

END-MATCHED CEILING

227. **Grades:** First Grade, Second Grade, Third Grade, Fourth Grade.

228. **Lengths:** Standard lengths of End-Matched Ceiling shall be 2′ to 16′, inclusive, nested in bundles 8′ and longer in multiples of one foot. The nominal lengths in End-Matched Ceiling shall be averaged to the nearest foot, except that 19″ shall be the minimum length in the First, Second and Third Grades, and 12″ shall be the minimum length in the Fourth Grade. Example: (The 7-foot lengths are above 6′-6″, to and including 7′-6″).

229. **Bundling:** The standard bundle of End-Matched Ceiling shall be in 1 or 2 tiers of 6 courses each.

230. **Special Provisions:** End-Matched Ceiling 1x4-10′ long, will admit 1″ crook; lengths longer or shorter than 10′ may have a proportionate amount of crook.

231. Pieces of End-Matched Ceiling, with tongue not more than 1/16″ scant of standard width, will be admitted in any grade. Pieces of Ceiling having not less than 1/16″ tongue or lap will be admitted in Fourth Grade.

Moisture Content provisions applicable to plain-end Ceiling are also applicable to End-Matched Ceiling, as follows: The provisions for C grade of plain-end Ceiling shall apply to First and Second Grades End-Matched, and provisions for common grades of plain-end Ceiling shall apply to the Third and Fourth Grades of End-Matched Ceiling.

232. In First, Second and Third Grades of End-Matched Ceiling, wane on the reverse side equivalent to 1/3 the width and 1/6 the length of the piece is admissible provided the wane does not extend into the tongue or groove; it may, however, extend into the groove or for ½ the thickness of the tongue provided the maximum width and length decrease in proportion to the increase in depth.

233. **First Grade End-Matched Ceiling** shall be well manufactured and practically free from defects on the face side that will materially mar the appearance of the finished wall, but 20% of a

shipment will admit of small spots of discoloration; an occasional sound tight pin knot, not to exceed ¼" in diameter; an occasional pin worm hole, without discoloration.

234. **Second Grade End-Matched Ceiling** will admit the following defects, or their equivalent: Small surface checks; 6 pin worm holes; slight torn grain; small sound tight knots; small pitch pockets; small pitch streaks; 15% firm red heart; 15% light stain.

235. **Third Grade End-Matched Ceiling** will admit the following defects, or their equivalent: Surface checks; a limited number of pin worm holes, well scattered; heavy torn grain, or other machine defects that will lay without waste; sound knots, not over ½ the cross section of the piece in the rough; pitch pockets; pitch, not to exceed 25% of the area of the piece; pith, not to exceed 3" in length; slight shake that does not go through; firm red heart; stain.

236. **Fourth Grade End-Matched Ceiling** will admit of all pieces not as good as Third Grade, which can be used in cheap construction or for crating.

PARTITION

237. **Grades:** A, B, No. 1 Common, No. 2 Common, and No. 3 Common.

238. **Lengths:** Standard lengths and percentages of short lengths shall be the same as in Ceiling.

239. **Dressed Sizes:** The dressed dimensions for Partition, shipped dry, are:

Nominal Thickness *Inches*	Nominal Width *Inches*	Thickness *Inches*	Face Width *Inches*	Over-all Width *Inches*
.....	3	¾	2⅝	2⅝
.....	4	.....	3¼	3½
.....	5	.....	4¼	4½
.....	6	.....	5-3/16	5-7/16

240. **Partition** shall be graded according to Ceiling rules, and must meet the requirements of the specified grades on the face side only, but the reverse side shall not be more than 1 grade lower, and shall not cause waste in No. 1 Common and better grades. The moisture content provisions for Ceiling shall also apply to Partition.

END-MATCHED PARTITION

241. **End-Matched Partition** is graded the same as End-Matched Ceiling, having the same grade names, the same standard lengths, the same bundling, the same crook provisions and the same descriptions for grades, including moisture content provisions.

DROP SIDING

242. The grades of Drop Siding are based upon a piece 6″ wide by 12′ long, or a piece having 6 square feet nominal surface measure; on this basis, larger or smaller pieces will admit a proportionate number of defects.

243. **Grades:** A, B, No. 1 Common, No. 2 Common, and No. 3 Common.

244. **Length:** Standard lengths are 4′ to 20′, inclusive, and the following percentages of short lengths may be included in all standard length shipments:

A and B	5%	8 and/or 9-foot
No. 1 Common	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
No. 2 Common	5%	4 and/or 5-foot
	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
No. 3 Common	Not to exceed 20%	4 and 6-foot lengths.

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practical in all shipments of standard lengths.

245. **Dressed Sizes:** Following are the dressed dimensions of Drop Siding when dry:

	Nominal Thickness *Inches*	Nominal Width *Inches*	Thickness *Inches*	Face Width *Inches*	Over-all Width *Inches*
Rustic and Drop Siding (D & M.)	.....	4	9/16	3¼	3½
	.....	5	¾	4¼	4½
	.....	6	.....	5-3/16	5-7/16
	.....	8	.....	7¼	7½
Rustic and Drop Siding— (Shiplapped).	.....	4	9/16	3⅛	3½
	.....	5	¾	4⅛	4½
	.....	6	.....	5-1/16	5-7/16
	.....	8	.....	7⅛	7½

246. **Special Provisions:** The following amount of crook, based on 16-foot lengths, shall be permissible in No. 1 Common and better grades of Drop Siding:

4″ widths.....3″ crook.
6″ widths.....2½″ crook.

Lengths longer or shorter than 16′ may have proportionate amounts of crook.

247. Pieces of Drop Siding with 3/16″ or more of tongue, or 5/16″ or more of lap, will be admitted in any grade.

Pieces of Drop Siding having not less than 1/16″ tongue or ⅛″ lap, will be admitted in No. 2 Common.

248. In No. 1 Common and better grades of Drop Siding, wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece, is admissible, provided the wane does not extend into the tongue or groove; it may, however, extend into the groove, or for ½ the thickness of the tongue for a length of 10″, provided the maximum width and length decrease in proportion to the increase in depth.

249. **Standard Workings:** Drop Siding may be worked either D&M or Shiplap (See cuts on pages 109 to 117.)

Patterns not shown on those pages are special.

250. **Moisture Content.** The moisture content provisions for "B" and Better Drop Siding, kiln-dried, are:

In 4/4″ the moisture content shall not exceed 12% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 15%.

If and when "B" and Better Drop Siding 4/4″ is air-dried, the moisture content shall not exceed 16% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 19%.

For No. 1, No. 2 and No. 3 Drop Siding, kiln-dried, the moisture content shall not exceed 15% in 90% of the pieces of a shipment, and the remainder shall not exceed 18%. In the same grades of Drop Siding, air-dried, the moisture content

shall not exceed 19% in 90% of the pieces of a shipment, and the remainder shall not exceed 22%.

251. **"A" Drop Siding** must be practically free from defects on the face side and well manufactured.

252. **"B" Drop Siding** will admit 2 or combination of two of any of the following defects or their equivalent: Medium surface checks; 6 pin worm holes; medium torn grain; 3 pin knots; 2 small knots; 2 very small pitch pockets, or 1 small pitch pocket; 1 small pitch streak; not to exceed 15% firm red heart; not to exceed 15% stain.

253. **No. 1 Common Drop Siding** will admit 1 medium pitch pocket, or 1 medium pitch streak, or the equivalent, and in addition, the following defects or their equivalent: Surface checks; limited number of pin worm holes, well scattered; loosened or heavy torn grain, or other machine defects that will lay without waste; sound knots, not over ½ the cross-section of the piece in the rough; pith, not exceeding 6″ in length; slight shake; short split, equal in length to width of piece; firm red heart; stain, not to exceed 15%.

Pieces otherwise as good as "B" Drop Siding may have 1 defect, such as a knot hole, that can be cut out by wasting not to exceed 2″ of their length, provided both pieces are 32″ or over in length after cutting out such defects.

254. **No. 2 Common Drop Siding** will admit all pieces that will not grade as good as No. 1 Common Drop Siding, which can be used for cheap siding without a waste of more than ¼ the length of any one piece.

255. **No. 3 Common Drop Siding** will admit pieces that cannot be used as No. 2 Common Drop Siding, but are suitable for use as cheap sheathing or lathing, without a waste of more than ¼ the length of any one piece.

END-MATCHED DROP SIDING

256. **Grades:** First Grade, Second Grade, Third Grade, Fourth Grade.

257. **Lengths:** Standard lengths of End-Matched Drop Siding shall be 2′ to 16′, inclusive, nested in bundles 8′ long and upward in multiples

of one foot. The nominal length in End-Matched Drop Siding shall be averaged to the nearest foot, except that 19″ shall be the minimum length in First, Second and Third Grades, and 12″ shall be the minimum in Fourth Grade. Example: (7-foot lengths are above 6′-6″ to and including 7′-6″.)

258. **Bundling:** The standard bundle of 1x6 End-Matched Drop Siding shall be in 1 or 2 tiers of 6 courses each.

259. **Special Provisions:** End-Matched Drop Siding 1x6-10′ long, will admit ¾″ crook; lengths longer or shorter may have a proportionate amount of crook.

Moisture content provisions applicable to plain-end Drop Siding are also applicable to End-Matched Drop Siding, as follows: The provisions for C grade of plain-end Drop Siding shall apply to First and Second Grades of End-Matched, and provisions for common grades of plain-end Drop Siding shall apply to the Third and Fourth Grades of End-Matched Drop Siding.

260. Pieces of End-Matched Drop Siding with tongue of 3/16″ or more of width, or 5/16″ or more of lap, will be admitted in any grade. Pieces of End-Matched Drop Siding having not less than 1/16″ tongue or ⅛″ lap, will be admitted in Fourth Grade.

261. The standard end-matched tongue and groove for End-Matched Drop Siding shall be as follows: Tongue, 5/32″ thick and 7/32″ wide; groove, 11/64″ wide and ¼″ deep, tongue and groove to be located ⅛″ from bottom of piece.

262. In First, Second and Third Grades of End-Matched Drop Siding, wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece is admissible, provided the wane does not extend into the tongue or groove; it may, however, extend into the groove, or for ½ the thickness of the tongue, provided the maximum width and length decrease in proportion to the increase in depth.

263. **First Grade End-Matched Drop Siding** shall be well manufactured and practically free from defects on the face side that will materially mar the appearance of the finished wall, but 20% of a shipment will admit of slight discolora-

tion; sound tight pin knots, not to exceed ½" in diameter; occasional pin worm holes, or slight torn grain.

264. **Second Grade End-Matched Drop Siding** will admit the following defects or their equivalent: Medium surface checks; 6 pin worm holes; medium torn grain; small sound tight knots; small pitch pockets; small pitch streaks; 15% firm red heart; 15% stain.

265. **Third Grade End-Matched Drop Siding** will admit of the following defects or their equivalent: Pitch pockets; pitch streaks; surface checks; limited number of pin worm holes, well scattered; loosened or heavy torn grain, or other machine defects that will lay without waste; sound knots not over ½ the cross section of the piece in the rough; pith, not exceeding 6" in length; slight shakes; firm red heart; stain.

266. **Fourth Grade End-Matched Drop Siding** will admit of pieces that will not grade as good as Third Grade, but which may be used for cheap siding.

BEVEL SIDING

267. **Grades:** A, B, No. 1 Common, No. 2 Common, and No. 3 Common.

268. **Lengths:** Standard lengths and percentages of short lengths shall be the same as in Drop Siding.

269. **Dressed Sizes:** Following are the dressed dimensions of Bevel Siding when dry:

Nominal Thickness *Inches*	Nominal Width *Inches*	Thickness *Inches*	Face Width *Inches*	Over-all Width *Inches*
.....	4	7/16x3/16	3½	3½
.....	5	10/16x3/16	4½	4½
.....	6	.....	5½	5½

270. **Bevel Siding** shall be graded according to the rules for Drop Siding, including moisture content provisions, and will admit, in addition, slight imperfections on the thin edge, which will be covered by the lap when laid 2½", 3½", or 4½" to the weather.

COMMON BOARDS AND STRIPS

Rough, Dressed, D&M, Shiplap, Barn, Siding, and Grooved Roofing

271. **Strips**, being material less than 3″ wide, shall be graded the same as Boards, and will be the product of the width of Board from which they are made.

272. **Grades:** No. 1 Common, No. 2 Common, No. 3 Common, and No. 4 Common.

273. **Length:** Standard lengths are 4′ to 20′, inclusive, in multiples of 2′, and the following percentages of short lengths may be included in all standard length shipments:

No. 1 Common	5%	8-foot.
No. 2 Common	5%	4-foot.
	5%	6-foot.
	5%	8-foot.
No. 3 and 4 Common 8″ and wider	5%	4-foot.
	5%	6-foot.
	5%	8-foot.

3″ to 6″ widths No. 3 and No. 4 Common may be 25% under 10-foot.

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practical in all shipments of standard lengths, except as may be hereinafter specified.

274. **Special Provisions:** The following crook, based on 16-foot lengths, shall be permissible in No. 1 and No. 2 Common grades:

3″, 4″, 5″ and 6″ widths	3″ crook.
7″ and 8″ widths	2½″ crook.
9″ and 10″ widths	2″ crook.
11″ and 12″ widths	1¾″ crook.

Pieces longer or shorter than 16′ may have proportionate amounts of crook. A greater amount of crook shall be permissible in No. 3 and 4 Common grades.

275. Based on a piece 12″ wide, ⅜″ cup shall be permissible in No. 1 Common grades and ½″ in No. 2 Common and poorer grades. Narrower or wider pieces may have proportionate amounts of cup.

All Common boards which are ordered dressed

1 or 2 sides, may be dressed on 1 edge to bring the width ⅛″ scant of the nominal width.

276. In stock widths of No. 1 and No. 2 Common Boards and Strips, rough, or dressed on 1 or 2 sides, no piece shall be counted as standard width that is more than ¼″ scant in width in 7″ and under, ⅜″ scant in 8″ to 12″, and ½″ scant in wider widths. Pieces narrower than the above should be measured as the next lower standard width and not reduced in grade.

277. Pieces of D&M with 3/16″ or more of tongue, and Shiplap with 5/16″ or more of lap, will be admitted in No. 1 Common. Pieces of D&M having not less than 1/16″ tongue, and Shiplap having not less than ⅛″ lap, will be admitted in No. 2 Common. Pieces with 1/16″ lap will be admitted in No. 3 Common Shiplap.

278. **Dressed Sizes:** Common Boards and Strips shall be of following sizes when S4S:

NOMINAL		DRESSED		
Thickness *Inches*	Width *Inches*	Thickness Standard Yard *Inches*	Thickness Standard Industrial *Inches*	Face Width *Inches*
1	3	25/32	26/32	2⅝
1¼	4	1-1/16	.....	3⅝
1½	5	1-5/16	.....	4⅝
.....	6	.....	.....	5⅝
.....	7	.....	.....	6⅝
.....	8	.....	.....	7½
.....	9	.....	.....	8½
.....	10	.....	.....	9½
.....	11	.....	.....	10½
.....	12	.....	.....	11½
.....	over 12	.....	.....	off ⅝

When worked to pattern the dressed sizes are:

	NOMINAL		DRESSED		
	Thickness *Inches*	Width *Inches*	Thickness *Inches*	Face Width *Inches*	Over-all Width *Inches*
Shiplap.....	1	4	25/32	3⅛	3½
	.....	6	.....	5⅛	5½
	.....	8	.....	7⅛	7½
	.....	10	.....	9⅛	9½
	.....	12	.....	11⅛	11½
Dressed and Matched.	1	4	25/32	3¼	3½
	1¼	6	1-1/16	5¼	5½
	1½	8	1-5/16	7¼	7½
	.....	10	.....	9¼	9½
	.....	12	.....	11¼	11½

279. **Standard Workings:** Dressed and Matched (CM), Shiplap, and Barn Siding shall be worked to the patterns shown in cuts on pages 106 and 107.

280. The size of the groove in Grooved Roofing shall be ½″ wide, ¼″ deep, and located 1-3/16″ from the outer edge of the groove to the edge of board, as shown in cut on page 107.

281. **Moisture Content:** For No. 1, No. 2 and No. 3 Common Boards and Strips, kiln-dried, the moisture content shall not exceed 15% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 18%.

For No. 1, No. 2 and No. 3 Common Boards and Strips, air-dried, the moisture content shall not exceed 19% in 90% of the pieces of a shipment, or an item of a shipment, and the remainder shall not exceed 22%.

282. **No. 1 Common Boards and Strips,** Rough, or Dressed 1 or 2 sides, must be suitable for use without waste, and will admit the following defects or their equivalent: Any number of sound knots, the average diameter of any 1 knot not to exceed approximately 1½″ in 3″ and 4″ widths, 2″ in 6″ and 8″ widths, 2½″ in 10″ widths, 3″ in 12″ widths, and not over 3½″ in wider widths; 2 pith knots; checks; a limited number of pin worm holes, well scattered; loosened or heavy torn grain, or other machine defects which will not cause waste; pitch pockets; pitch; pith, 1/6 the length of the piece; shake that does not go through the piece; the equivalent of 1 split, not to exceed in length the width of the piece; firm red heart; stain, not to exceed 15%; wane equivalent to 1″ in width, ½″ in depth, and 1/3 the length of the piece.

283. **No. 1 Common Dressed and Matched (CM), Shiplap, and Barn Siding** shall be graded according to the rules for No. 1 Common Boards and Strips, except that wane shall not be so deep as to extend into the tongue or for ½ the thickness of the top lip on the groove in D&M, or for over ½ the thickness of the lap in Shiplap, on the face side.

284. **No. 1 Common Grooved Roofing** shall be graded according to the rules for No. 1 Common Boards and Strips, except pith knots, worm holes,

and checks and splits that show an opening through, shall not be permitted.

285. **No. 2 Common Boards and Strips, Rough, or Dressed 1 or 2 sides, Dressed and Matched (CM), Shiplap, Barn Siding, and Grooved Roofing,** will admit the following defects or their equivalent: Knots not necessarily sound, the average diameter of any 1 knot not to exceed approximately 1½″ in 3″ widths, 2½″ in 4″ widths, 3″ in 6″ widths, 3½″ in 8″ widths, 4″ in 10″ widths, 4½″ in 12″ and 5″ in wider widths; worm holes; deep torn grain or other machine defects which will not cause waste; pitch pockets; pitch; pith; through shakes not to exceed ½ the length of the piece; splits not to exceed ¼ the length of the piece; streaks of advanced decay not to exceed ½″ wide by ¼ the length of the piece, or its equivalent in unsound red heart; stain; wane 2″ wide, ½ the length of the piece.

A knot hole or the equivalent, not to exceed 2″ in diameter. will be admitted in No. 2 Common.

Miscut or mismanufactured 1″ Common, which does not fall below ¾″ in thickness, shall be admitted in No. 2 Common, provided the grade of such stock is otherwise as good as No. 1 Common.

286. **No. 3 Common Boards and Strips,** Rough, or Dressed 1 or 2 sides, **Dressed and Matched (CM) Shiplap, and Barn Siding** will admit coarse knots; loose or decayed knots and knot holes; through checks, shakes and splits; serious defects in dressing; pitch pockets and heavy pitch; advanced decay; stain; wane; or other defects which will not prevent its use as a whole for cheap sheathing or which will cut 75% of lumber as good as No. 2 Common.

287. **No. 4 Common Boards and Strips** shall include all pieces that fall below the grade of No. 3 Common, excluding such pieces, however, as will not be held in place by nailing after wasting ¼ the length of the piece by cutting into 2 or 3 pieces; mill inspection to be final.

288. *The grades listed and described below, while not referred to in American Lumber Standards, are maintained by this Association in seeking a conser-*

vation of the products and trade peculiar to this industry: (Paragraphs 289-297 inclusive.)

289. **Grades:** No. 1 Edge Box, No. 2 Edge Box.

290. **Lengths:** 8′ to 16′, not exceeding 5% of 8-foot lengths.

291. **Widths:** Widths are random from 3″ to 11″ inclusive.

292. **No. 1 Edge Box** shall consist of lumber below the grade of No. 1 Common, containing pin worm holes; reasonably sound knots; pith knots; encased knots and sound knots which do not seriously affect strength of pieces; stain not exceeding 25%. Stained pieces otherwise B and Better, which show over 50% stain; stained pieces otherwise grading No. 1 Common and showing not more than 33-1/3% stain; and pitchy pieces which are not allowed in C and Better lumber but will otherwise grade C and Better; and No. 1 Common containing 50% firm red heart will be admitted in this grade.

293. **No. 2 Edge Box:** This grade shall consist of boards below the grade of No. 1 Edge Box (excepting Bark Strips) and which can be used with a waste not exceeding 25%. This grade will admit red heart, but pieces 7″ and wider shall cross-cut sound in the widths for which they are shipped within the above limit of waste.

294. **Dunnage:** This grade shall consist of all lumber below the grade of No. 2 Edge Box.

295. **B and Better Bark Strips:** This grade shall consist of lumber containing bark and may be inspected from either side; and within the limitations hereinafter described, bark shall not be considered a defect in this grade, viz: 90% of any amount inspected shall show not less than ½″ of wood from end to end of piece on edges. 10% of any amount inspected may show less than ½″ of wood on edges, but only on condition that the side containing bark shall show 75% of wood. With the exceptions as noted above, this grade shall be equal to B and Better lumber.

296. **Bark Strip Partition:** This grade shall consist of Partition made from B and Better Bark Strips as described in rule No. 295. 90% of each

lot inspected to show not less than 7/16″ of wood on both edges from end to end of piece, while admitting not over 10% showing less than 7/16″ of wood on edges, provided grading side is 75% clear of bark or wane. To be otherwise equal to the grade of B and Better lumber. Lengths, 6′ to 16′.

297. **Box Bark Strips:** This grade shall consist of all bark strips falling below the description of B and Better Bark Strips. When resawn the mill inspection and tally are final.

END-MATCHED CONCRETE FORM LUMBER, AND END-MATCHED SHEATHING AND SUB-FLOORING, S2S&CM AND SHIPLAP.

298. **Grades:** End-Matched Concrete Form Lumber, End-Matched Sheathing and Sub-Flooring.

299. **Length:** Standard lengths of End-Matched Concrete Form Lumber and End-Matched Sheathing and Sub-Flooring shall be 2′ to 16′, inclusive, nested in bundles 8′ and upward in 1 foot multiples. The nominal length shall be averaged to the nearest foot except that 19″ shall be the minimum length. Example: (7-foot lengths are above 6′-6″ to and including 7′-6″.)

300. **Moisture Content:** The provisions of Section 281 on Common Boards shall govern in End-Matched Concrete Form Lumber and End-Matched Sheathing and Sub-Flooring.

301. **End-Matched Concrete Form Lumber,** S2S&CM or Shiplap will admit the following defects or their equivalent: Sound knots not over 1/3 the cross section of the piece in the rough; deep torn grain or other machine defects which will not cause waste; pitch pockets that do not go through; pitch; pith; shakes that do not go through; firm red heart; stain; wane not to exceed ¼ the length of the piece and not over ¾″ wide nor more than ¼″ deep.

302. **End-Matched Sheathing and Sub-Flooring,** S2S&CM, Shiplap, and beaded or V'd patterns, will admit the following defects or their equivalent: Knots not over ½ the cross section

of the piece in the rough, not necessarily sound but so fixed by growth or position that they will retain their places in the piece; pith knots; deep torn grain or other machine defects which will not cause waste; pitch pockets; pitch; pith; shakes not exceeding ½ the length of the piece; splits not to exceed ¼ the length of the piece; red heart; stain; wane not over 2″ wide nor more than ½″ in depth ½ the length of the piece.

SOUTHERN PINE LATH

303. **No. 1 Lath** when green, should measure 2″ in thickness to every 5 lath with the minimum thickness of any one lath not less than 5/16″, and should not be less than 1-7/16″ in width. When dry they should measure 1⅝″ in thickness to every 5 lath, and should not be less than 1-5/16″ in width. Length 4′, with not more than 20% of a shipment which may be as much as ½″ short in length.

304. **No. 1 Lath** will admit wane ⅛″ deep, ¼″ wide on the face, and 6″ long; pin worm holes; and 1 pin knot. Stain shall not be considered a defect.

305. Lath 1″ wide and 48″ long may be furnished, when ordered, on the above specifications. Lath 32″ long may be furnished, when ordered, on the above specifications.

306. **No. 2 Lath** shall consist of pieces that fall below the grade of No. 1 which are not less than 1¼″ in width, ¼″ thick, when dry, and are not more than ¾″ short in length. They will admit wane, worm holes, knots, and other defects that will not prevent their use without waste.

BYRKIT LATH

307. **Sizes:** ¾″ x 3½″ and 5¼″; lengths, 4′ and up. (See cuts on page 108.)

308. **Standard Byrkit Lath** shall consist of material that will be held firmly in place and support plaster by ordinary nailing by not wasting more than 10% of any piece and that will present a full surface with no openings over ½″ in width and 3″ in length. The ends of pieces of Byrkit Lath are not expected to meet on studding,

and only such quantity shall be counted waste as is necessary to remove a defect.

PICKETS

309. **Square Pickets,** from 1½″ stock, shall be worked to 1-5/16″ x 1-5/16″, 3′ and 4′ long, dressed on 4 sides and pointed. 1¼″ stock shall be worked to 1-1/16″ x 1-1/16″, 3′ and 4′ long, dressed on 4 sides and pointed.

310. **Flat Pickets** from 1″ x 3″ stock shall be worked to ¾″ x 2¼″, 3′ and 4′ long, dressed on 4 sides and headed.

SOUTHERN PINE SHINGLES

311. **Size:** All shingles shall be not less than 7/16″ thick at butt, when dry, tapered to 1/16″ at thin end, 4″ wide, and 18″ long, except as to variations hereinafter specified.

312. **Select Grade** shall be all heart, practically free from defects, and well manufactured, allowing a variation of ½″ in length and ¼″ in width.

313. **No. 1 Grade** shall be all heart, free from unsound knots, but will admit sound tight knots, not exceeding 2″ in diameter, if not located within 6″ of butt end; slight pitch streaks; clipped ends in not to exceed 10% of the shingles; and a variation of ½″ in length and ¼″ in width.

314. **Prime Grade** may be all sapwood, practically free from defects and well manufactured, allowing a variation of ½″ in length and ¼″ in width. Stain shall not be considered a defect in this grade.

315. **No. 2 Grade** may be all sapwood, and will admit sound tight knots, not exceeding 2″ in diameter, if not located within 6″ of butt end; firm red heart; stain; pitch; pitch pockets that do not show through; wane, or absence of wood, not exceeding ½″ in width, that does not extend within 6″ of butt end; a variation not exceeding 1″ in length and ½″ in width; clipped ends in not to exceed 20% of the shingles; and slight defects in manufacture.

Note: The count of shingles is based on 4,000 lineal inches in width to 1,000 shingles.

SPECIFICATIONS
FOR
Longleaf Yellow Pine

Structural Timbers
Small Timbers
Structural Joist and Plank
Factory Flooring
Decking and Heavy Shiplap
Dimension

Conforming to American Lumber Standards

Unit Working Stresses

———:o:———

Definition of Longleaf

316. Longleaf (Pinus palustris) material as described in these rules shall be manufactured from original growth Longleaf Yellow Pine trees, and shall show not less than six (6) annual rings to the inch, and contain not less than 1/3 summerwood (measured according to the density rule as adopted by the American Society for Testing Materials in 1933). The contrast in color between summerwood and springwood shall be sharp, and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood. Summerwood is the measure of strength. Evidence of Longleaf shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the name "Longleaf" in conjunction with the official SPA grade-mark on each piece.

Note: Each subscriber to the Southern Pine Association has entered into a written agreement which guarantees to the Association the shipment of proper species when species-marked under the definition of Longleaf.

In the case of non-subscriber mills: Prior to inspection and marking by the official Southern Pine Association inspector, the mill shall have certified to the Southern Pine Association regarding the species of the particular material; and, as a further guaranty to the Association, in either of the above cases, the inspector will make a personal study and investigation at the mills.

STRUCTURAL GRADES IN LONGLEAF TIMBERS

(Sizes 6"x6" and Larger)

317. There are five structural grades in Longleaf Southern Yellow Pine timbers, written to conform to American Lumber Standards. To each grade there has been assigned definite unit working stresses (see working stress tables). The extreme fibre in bending for each grade, when used in dry location, is as follows:

Select Structural Longleaf 2000f; 1450c
Prime Structural Longleaf 1800f; 1300c
Merchantable Structural Longleaf 1600f; 1200c
Structural Square Edge and Sound Longleaf 1600f; 1200c
No. 1 Structural Longleaf.....1400f; 1000c

PROVISIONS FOR ALL STRUCTURAL GRADES

318. **Density:** All structural grades of Longleaf timbers shall conform to that part of the definition for density as adopted by the American Society for Testing Materials, in 1933, wherein there shall be no less than 6 rings per inch and no less than 33 1/3% summerwood measured according to the Density Rule.

319. **Sizes:** Rough timber of all structural grades must be full size when green. One-quarter inch shall be allowed for each side surfaced.

320. **Shakes and Checks:** Structural grades of timbers shall contain only sound wood and be well manufactured, shall be free from end shakes and checks exceeding 1/3 the width of the end (narrow face) excepting in No. 1 Structural, in which shakes may measure ½ the width of end.

(These limitations give 125# in horizontal shear excepting for No. 1 Structural; higher shear may be obtained by specifying that the grade ordered shall have 150# or 175#.) This will not change any other feature of the grading rule.

321. **Measurement:** In beams and stringers (pieces of unequal faces) the size of a shake shall be taken as the shortest distance between lines enclosing the shake and parallel to the wide faces of the piece.

Measurement of shake is based on green material.

In posts (square timbers) the shake shall be measured in a straight line from end to end of opening of shake, and length of such straight-line shall not be greater than ¾ the actual face measurement whether rough or dressed. (See illustration on page 55.)

322. **Horizontal Shear Specifications:** Stresses in horizontal shear vary with shakes and checks and with increase in density; do not vary with extent of exposure, nor size of piece.

For 110# in horizontal shear—shakes and checks must not exceed ½ the width (narrow face) at the end.

For 125# in horizontal shear—shakes and checks must not exceed 1/3 the width (narrow face) at the end.

For 150# in horizontal shear—shakes and checks must not exceed ¼ the width (narrow face) at the end.

For 175# in horizontal shear—shakes and checks must not exceed 1/6 the width (narrow face) at the end.

323. **General Knot Limitations:** In all structural timber grades the following paragraphs govern:

On narrow faces of beams or stringers the size of a knot shall be taken as its width between lines parallel to the edges of the piece. On wide faces the smallest diameter of a knot shall be taken as its size. The average diameter of a spike knot shall be taken as the average of its length and its maximum width.

The size of knots on narrow or horizontal faces may increase proportionately from the size allowed in the middle third to twice that size at the ends of the piece.

The size of knots on wide or vertical faces may increase proportionately from the size allowed at the edge to that allowed at the center line.

Knots at edges of wide faces shall not exceed in size the knots permitted on the adjacent narrow face, but the size is measured on the least diameter instead of otherwise. Knots at edges of wide faces may increase proportionately from size

allowed in the middle third to twice that size at the end of the piece.

In square timbers (usually posts) the size of a knot shall be measured on the mean or average diameter.

In square timbers the sum of the diameters of the knots on all sides within any 6 inches of length shall not exceed twice the maximum size knot allowable; nor shall there be 2 of maximum allowable knots in the same 6 inches of length of any face.

Select Structural Longleaf (2000f; 1450c)

324. Select Structural Longleaf timbers shall conform to the definition of Longleaf (page 47), shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed 1/3 the width of end (narrow face), and diagonal grain with slope greater than 1″ in 20″; no wane permitted; shall show 85% heart, girth measurement, at point of greatest sap, unless otherwise definitely specified. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 49, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed ½ the width of that face. Knot limitations are:

Size	Unequal Face Timbers		Square Timbers
	Narrow Face	Wide Face	
6″	¾″		¾″
8″	1″	1″	1″
10″	1″	1½″	1½″
12″	1¼″	1¾″	1¾″
14″	1¼″	1¾″	1¾″
16″	1¼″	2″	2″
18″		2″	2″

Prime Structural Longleaf (1800f; 1300c)

325. Prime Structural Longleaf timbers shall conform to the definition of Longleaf (Page 47),

shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed 1/3 the width of end (narrow face), and diagonal grain with slope greater than 1″ in 15″; no wane permitted; all square lumber shall show 2/3 heart on 2 sides, and not less than ½ heart on 2 other sides; other sizes shall show 2/3 heart on wide faces and show heart 2/3 of length on narrow face, excepting when the wide face exceeds the narrow face by 3″ or over, then it shall show heart on the narrow face for ½ the length. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 49, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed the width of that face. Knot limitations are:

Size	Unequal Face Timbers		Square Timbers
	Narrow Face	Wide Face	
6″	1¼″		1¼″
8″	1½″	1¾″	1¾″
10″	1¾″	2¼″	2½″
12″	2″	2¾″	2¾″
14″	2″	3″	3″
16″	2¼″	3¼″	3¼″
18″		3¼″	3¼″

Merchantable Structural Longleaf (1600f; 1200c)

326. Merchantable Structural Longleaf timbers shall conform to the definition of Longleaf (Page 47), shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed 1/3 the width of end (narrow face), and diagonal grain with slope greater than 1″ in 12″; wane shall not exceed ⅛ width of face and ¼ length of piece on one corner, or the equivalent on 2 or more corners, on not to exceed 10% of the pieces; all sizes under 9″ shall show some heart entire length on 1 side; sizes 9″ and over shall show some heart

the entire length on 2 opposite sides, or may show 2/3 heart on 1 side if some heart shows the entire length on the opposite side. May contain sound knots, (which will include encased knots or knots with pith holes not to exceed ¼") provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 49, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed the width of that face. Knot limitations are:

	Unequal Face Timbers		Square
Size	Narrow Face	Wide Face	Timbers
6"	1¾"		1¾"
8"	2¼"	2½"	2½"
10"	2½"	3"	3"
12"	2¾"	3¾"	3½"
14"	2¾"	4"	4"
16"	3"	4¼"	4¼"
18"		4½"	4½"

Structural Square Edge and Sound Longleaf

(1600f; 1200c)

327. Structural Square Edge and Sound Longleaf timbers shall conform to the definition of Longleaf (Page 47), shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed 1/3 the width of end (narrow face), and diagonal grain with slope greater than 1" in 12"; wane shall not exceed ⅛ width of face and ¼ length of piece on one corner, or the equivalent on 2 or more corners, on not to exceed 10% of the pieces; no limitations as to heart content. May contain sound knots, (which will include encased knots or knots with pith holes not to exceed ¼") provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 49, and provided that the aggregate diam-

eter of all knots within the center half of the length of any face shall not exceed the width of that face. Knot limitations are:

Size	Unequal Face Timbers Narrow Face	Wide Face	Square Timbers
6″	1¾″		1¾″
8″	2¼″	2½″	2½″
10″	2½″	3″	3″
12″	2¾″	3¾″	3½″
14″	2¾″	4″	4″
16″	3″	4¼″	4¼″
18″		4½″	4½″

No. 1 Structural Longleaf (1400f; 1000c)

328. No. 1 Structural Longleaf timbers shall conform to the definition of Longleaf (Page 47), shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed ½ the width of end (narrow face), and diagonal grain with slope greater than 1″ in 10″; wane permitted if it does not exceed 1½″ on 2 faces for 1/3 the length of the piece; no limitations as to heart content. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 49, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed the width of that face. Knot limitations are:

Size	Unequal Face Timbers Narrow Face	Wide Face	Square Timbers
6″	2¼″		2½″
8″	2¾″	3¾″	3″
10″	3″	4″	3¼″
12″	3½″	5″	4″
14″	3½″	5¼″	4″
16″	3¾″	5½″	4¼″
18″		5¾″	5″

SHAKE MEASUREMENT IN BEAMS

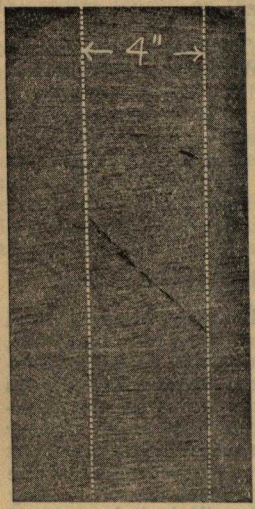


Fig. 1

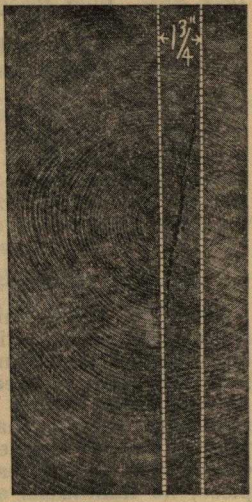


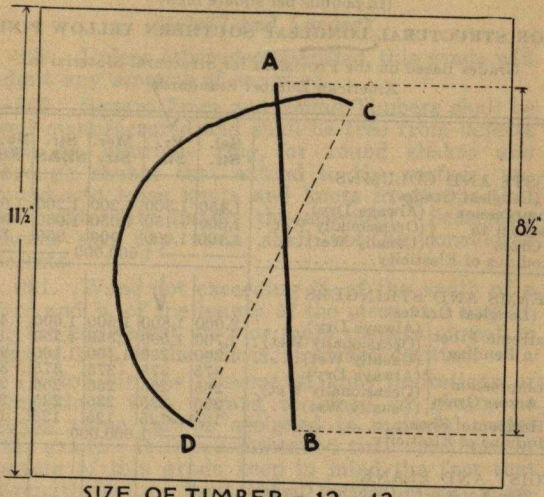
Fig. 2

Herewith are two 8″x16″ Beams. Dotted lines are drawn parallel to the wide faces, enclosing the shake as prescribed for pieces with unequal faces. Figure 1 shows a shake 4″ in size, while the narrow face of the piece is 8″. That shake is not permissible in any Structural grade. In Figure 2 the shake is 1¾″, the narrow face is 8″, and this shake will be acceptable in any Structural grade with special specification for a horizontal shear of 150# or less. If no specification for horizontal shear is made this shake is acceptable in any of the Structural grades as written.

If the piece in Figure 1 had been turned so the shake would be more nearly parallel to the wide faces, it would have come within any Structural grade.

By a slight change in the shake in Figure 2, bringing the shake within two parallel lines about 1¼″ apart, the horizontal shear value would have been made 175# instead of 150#.

SHAKES IN SQUARE TIMBERS



SIZE OF TIMBER - 12 x 12

In square timbers, when used as posts or columns, the opening of the shake, measured in a straight line from end to end of shake, shall not exceed ¾ of the actual dimension of a face; if square timbers are specified for use as Caps or Beams, the method of measuring shake shall be the same as for timbers with unequal faces. (See page 54.)

(Illustration—When square timbers are used as posts or columns. The above illustration indicates how to measure shake, using a 12x12 S4S to explain. The straight-line measurement from C to D in a ring shake shall be made as if the shake were a straight line.)

UNIT WORKING STRESSES

(In pounds per square inch)

FOR STRUCTURAL LONGLEAF SOUTHERN YELLOW PINE

Grades Based on the Provisions for Structural Material in American Lumber Standards

		Sel. Str.	Pr. Str.	Mer. Str.	Str. SE&S	No. 1 Str.
POSTS AND COLUMNS (Longleaf Grades)						
Compression Parallel to Grain	(Always Dry)	1,450	1,300	1,200	1,200	1,000
	(Occasionally Wet)	1,300	1,150	1,050	1,050	900
	(Usually Wet)	1,100	1,000	900	950	750
Modulus of Elasticity		1,600,000				
BEAMS AND STRINGERS (Longleaf Grades)						
Extreme Fiber in Bending	(Always Dry)	2,000	1,800	1,600	1,600	1,400
	(Occasionally Wet)	1,700	1,500	1,350	1,350	1,150
	(Usually Wet)	1,300	1,200	1,100	1,100	950
Compression Across Grain	(Always Dry)	375	375	375	375	375
	(Occasionally Wet)	265	265	265	265	265
	(Usually Wet)	235	235	235	235	235
*Horizontal Shear		125	125	125	125	110
Modulus of Elasticity		1,600,000				
JOIST AND PLANK (See Notes a-b) (Longleaf Grades)						
Extreme Fiber in Bending	(Always Dry)	.....	1,800	1,600	1,600	.....
	(Occasionally Wet)	.....	1,500	1,350	1,350	.....
	(Usually Wet)	.....	1,200	1,100	1,100	.....
Compression Across Grain	(Always Dry)	.....	375	375	375	.....
	(Occasionally Wet)	.....	265	265	265	.....
	(Usually Wet)	.....	235	235	235	.....
*Horizontal Shear		.....	125	125	125	.....
Modulus of Elasticity		1,600,000				

(a)—These stresses are applicable, used flat or on edge.

(b)—Compressive stresses listed under Posts and Columns for each respective grade may be applied to sizes classified as Joist and Plank, when used as compression members in designing trusses, towers, etc.

Usually Wet:—For use, when untreated, in exterior structures or members exposed to saturated moisture conditions.

Occasionally Wet:—For use, when untreated, in exterior structures exposed to the weather but not in contact with the soil.

Always Dry:—For use in interior of structure.

Treated Material:—When timbers are used in usually wet or occasionally wet locations they should be treated as to method and preservative, according to standards approved by the Southern Pine Association, and when so treated, the stress values in the "Always Dry" column are recommended for any kind of exposure.

***Note.—All Grading Rules but one are written for 125 pounds shear, but 150 pounds, or 175 pounds may be specified. See Grading Rules.**

LONGLEAF SQUARE EDGE AND SOUND TIMBERS

(6"x6" and Larger)

329. Unless otherwise specified, this grade will admit any amount of sapwood.

330. Square Edge and Sound Timbers shall be well manufactured and shall be free from defects such as injurious ring, or round shakes and through shakes that extend to the surface, unsound and loose knots and knots in groups that will materially impair the strength. Seasoning checks and sap stain shall not be considered defects.

331. Wane not exceeding ⅛ of the width of a face and ¼ of the length of the piece on 1 corner, or the equivalent on 2 or more corners on not to exceed 10% of the pieces, shall be admitted.

(Note)—In the absence of knot limitations or limitations with regard to slope of grain, no stress value can be assigned to material under this grade. It is recommended that specifiers or buyers of this grade keep in mind the fact that strength-factor limitations hereinbefore mentioned not being specified for Longleaf Square Edge and Sound Timbers, nothing higher than the foregoing described grade may be expected, and the attempted assignment of a stress value will be questionable.

LONGLEAF STRUCTURAL JOIST AND PLANK

(2" to 5" Thick, and 6" to 16" Wide)

Definition of Longleaf: Longleaf (Pinus palustris) material as described in these rules shall be manufactured from original growth Longleaf Yellow Pine trees, and shall show not less than six (6) annual rings to the inch, and contain not less than 1/3 summerwood (measured according to the density rule as adopted by the American Society for Testing Materials in 1933). The contrast in color between summerwood and springwood shall be sharp and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood. Summerwood is the measure of

strength. Evidence of Longleaf shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the name "Longleaf" in conjunction with the official SPA grade-mark on each piece.

332. **Grades:** Longleaf Prime Structural Joist and Plank; Longleaf Merchantable Structural Joist and Plank; Longleaf Structural Square Edge and Sound Joist and Plank.

333. **Sizes:** Dressed — Standard thicknesses, S1S or S2S: ⅜″ off nominal. Standard widths, 6″, S1E or S2E: ⅜″ off; 8″ and wider, S1E or S2E: ½″ off nominal.

Rough—Green or dry, shall not be less in thickness than ¼″ off nominal; for widths up to and including 6″ the rough width shall be no less than ¼″ off nominal, and the widths greater than 6″ shall be no less than ⅜″ off nominal.

334. **Shake:** In Joist and Plank the size of a shake shall be taken as the shortest distance between two lines enclosing the shake and parallel to the wide faces of the piece. (See illustrations on pages 54 and 55.)

Measurement of shake is based on green material.

335. **General Knot Limitations:** On wide faces of Joist and Plank the size of knot shall be the mean or average diameter. On narrow faces of Joist and Plank the size of a knot shall be taken as its width between lines parallel to the edges of the piece. The average diameter of a spike knot shall be taken as the average of its length and its maximum width.

The size of knots on wide faces may increase proportionately from the size allowed at the edge to that allowed at the center line. Knots on narrow faces and at edges of wide faces located outside the middle third of the length of the piece may increase proportionately from the size allowed in the middle third to twice that size at the ends of the piece.

Longleaf Prime Structural (1800f)

336. Longleaf Prime Structural Joist and Plank shall conform to the definition for Longleaf as recited on page 47; shall be of sound

wood and well manufactured; shakes or checks on end shall not exceed 1/3 the width of end (narrow face); wane shall not exceed ⅛ the width of any face and ¼ of the length of the piece on 1 corner; slope of grain shall not be greater than 1″ in 12″ in the center half of the length; in widths 7″ or less each piece shall show 1 heart face, but when over 7″ wide there shall be 2/3 heart on both sides. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided that the size of any 1 knot on the center line shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations," and provided the sum of diameters of knots in the center half of the length of any face shall not exceed 1½ times the width of the face. Knot limitations are as follows:

Width of Face	At Edge of Wide Face Middle Third of Length	On Center Line of Wide Face
4″	½″	1″
6″	1″	1¾″
8″	1¼″	2¼″
10″	1½″	2¾″
12″	2″	3½″
14″	2¼″	4″
16″	2¼″	4¼″

Knots on narrow faces of boxed heart pieces, middle third of length are limited as follows:

For 2″ thickness	½″
3″ thickness	¾″
4″ thickness	1″
5″ thickness	1¼″

Longleaf Merchantable Structural (1600f)

337. Longleaf Merchantable Structural Joist and Plank shall conform to the definition for Longleaf as recited on page 47; shall be of sound wood and well manufactured; shakes and checks on end shall not exceed 1/3 the width of end (narrow face); wane shall not exceed ⅛ the width of any face and ¼ of the length of the piece on 1 corner; slope of grain shall not be greater than 1″ in 12″ in the center half of the length; sizes

under 9″ shall show some heart the entire length on 1 side, while sizes 9″ and over shall show some heart the entire length on 2 opposite sides, or may show 2/3 heart on one side if some heart shows the entire length on the opposite side. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided that the size of any 1 knot on the center line shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations," and provided the sum of diameters of knots in the center half of the length of any face shall not exceed 1½ times the width of the face. Knot limitations are as follows:

Width of Face	At Edge of Wide Face Middle Third of Length	On Center Line of Wide Face
4″	¾″	1¼″
6″	1¼″	2″
8″	1½″	2½″
10″	2″	3¼″
12″	2¼″	4″
14″	2½″	4½″
16″	2½″	4½″

Knots on narrow faces of boxed heart pieces, middle third of length are limited as follows:

For 2″ thickness	⅝″
3″ thickness	1″
4″ thickness	1¼″
5″ thickness	1½″

Longleaf Structural Square Edge and Sound (1600f)

338. Longleaf Structural Square Edge and Sound Joist and Plank shall conform to the definition for Longleaf as recited on page 47; shall be of sound wood and well manufactured; shakes and checks on end shall not exceed 4/9 the width of end (narrow face); wane shall not exceed ⅛ the width of any face and ¼ of the length of the piece on 1 corner; slope of grain shall not be greater than 1″ in 12″ in the center half of the length; no limitations as to heart nor sap (this is recommended as a grade for preservative treat-

ment for use in wet locations). May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼"), provided that the size of any 1 knot on the center line shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations," and provided the sum of diameters of knots in the center half of the length of any face shall not exceed 1½ times the width of the face. Knot limitations are as follows:

Width of Face	At Edge of Wide Face Middle Third of Length	On Center Line of Wide Face
4"	¾"	1¼"
6"	1¼"	2"
8"	1½"	2½"
10"	2"	3¼"
12"	2¼"	4"
14"	2½"	4½"
16"	2½"	4½"

Knots on narrow faces of boxed heart pieces, middle third of length are limited as follows:

For 2" thickness..... ⅝"
3" thickness.....1"
4" thickness.....1¼"
5" thickness.....1½"

LONGLEAF FACTORY FLOORING, HEAVY ROOFING, DECKING AND HEAVY SHIPLAP

Definition of Species: Longleaf (Pinus palustris) material as described in these rules shall be manufactured from original growth Longleaf Yellow Pine trees, and shall show not less than six (6) annual rings to the inch, and contain not less than 1/3 summerwood (measured according to the density rule as adopted by the American Society for Testing Materials in 1933.) The contrast in color between summerwood and springwood shall be sharp and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood. Summerwood is the measure of strength. Evidence of Longleaf shall be furnished by the manufacturer by branding under

official Southern Pine Association supervision the name "Longleaf" in conjunction with the official SPA grade-mark on each piece.

339. **Grades:** Longleaf Select Merchantable Factory Flooring and Roofing Plank (may also be specified all heart); Longleaf Standard Factory Flooring and Roofing Plank; No. 1 Longleaf Flooring, Decking and Heavy Shiplap.

340. **Sizes:** The following are standard dressed sizes when green or commercially dry:

THICKNESS		WIDTH			
			DRESSED		
Nominal	Dressed	Nominal	D. & M.	Shiplapped	For Splines
2″	1⅝″	4″	3⅛″	3″	3⅛″
2½″	2⅛″	6″	5⅛″	5″	5⅛″
3″	2⅝″	8″	7⅛″	7″	7⅛″
4″	3⅝″	10″	9⅛″	9″	9⅛″
		12″	11⅛″	11″	11⅛″

(See drawings on pages 99 to 104.)

341. **Lengths:** Standard lengths are 8′ to 24′, inclusive, in multiples of 2′. Longer lengths shall be considered special; odd or fractional lengths shall be counted as of the next higher even foot.

342. **Crooks:** The following crooks will be admitted in all grades of Heavy Flooring, Plank, Decking and Shiplap, based on 16-foot lengths:

4″ wide.....¾″
6″ wide.....11/16″
8″ wide.....⅝″
10″ wide.....½″

343. **Standard Workings:** The standard workings for Heavy Flooring shall be as follows: For 2″ and 2½″ material, the tongue shall be 7/16″ thick and ⅜″ wide. For 3″ and thicker material the tongue shall be ¾″ thick and ⅜″ wide. The groove in heavy matching should be 1/16″ wider than the thickness of the tongue and 1/16″ deeper than the width of the tongue. The recession of lower lip should be 1/16″. (See cuts on pages 99 to 101.)

In standard matching for Factory Flooring and Roofing Plank the tongue and groove shall be located ¼ the nominal thickness from the bottom of the piece. (See cuts on pages 99 to 101.)

When grooved for splines, the groove shall be the same width and depth as is provided for in matched material of the same thickness and shall be S2S and center grooved. (See cuts on pages 102 to 104.)

344. **Standard Splines:** For 2″ and 2½″ material the splines shall be 7/16″ thick by ¾″ wide; for 3″ and thicker material splines shall be ¾″ thick by ¾″ wide. Splines shall be rounded on all 4 corners on ⅛″ radius.

345. **Standard Working for Beaded and "V" Factory Flooring** shall be as follows: Standard Bead ½″ wide, 8/32″ thick and depressed 1/32″ below line of cut; over-all width channel ⅞″. Standard V ¼″ wide and ¼″ deep on edge; center V shall be ¼″ deep and ½″ wide.

The lap in Heavy Shiplap shall be ½″ wide, occupying ½ the finished thickness of the piece. (See cut on page 105.)

Workings not herein provided for shall be considered special.

346. **Special Provision:** Pieces of D&M with 5/16″ of tongue and shiplap with ⅜″ of lap on 1 edge will be admitted in all grades.

347. **Select Merchantable Factory Flooring and Roofing Plank** must be free from wane and must show 2/3 heart surface the entire length of the piece on 1 side, and show some heart 2/3 the length on the opposite side; the side showing the most heart shall be considered the face side on stock worked S2S&CM or S2S&SL. Where stock is worked S2S&M B1E1S the bead should be worked on the side showing the most heart. This grade will admit sound knots, the average diameter of any 1 knot not to exceed ¼ the width of the piece; pith knots; surface checks; a limited number of pin worm holes well scattered; loosened or heavy torn grain or other machine defects that will lay without waste; pitch pockets; pitch; pith, 1/6 the length of the piece; shakes that do not go through; split in ends that do not exceed in length the width of the piece; firm red heart not to exceed 15% of the area of the face; stain.

348. **Special All Heart:** The foregoing Select Merchantable Factory Flooring and Roofing Plank

may be obtained in **All Heart** if so specified, in which case all specifications of Select Merchantable are retained excepting that having to do with heart content.

349. **Standard Longleaf Factory Flooring and Roofing Plank** must be free from wane, but will admit the following defects, or their equivalent: Sound knots, the average diameter of any 1 knot not to exceed ¼ the width of the piece; pith knots; surface checks; a limited number of pin worm holes well scattered; loosened or heavy torn grain or other machine defects that will lay without waste; pitch pockets; pitch; pith, 1/6 the length of the piece; shakes that do not go through; splits in ends that do not exceed in length the width of the piece; firm red heart not to exceed 15% of the area of the face; stain. When worked S2S&M, B1E1S the bead should be worked on the best side of the piece.

350. **No. 1 Longleaf Factory Flooring, Decking and Heavy Shiplap** will admit the following defects, or their equivalent: Any number of sound knots, the diameter of any 1 knot not to exceed 1/3 the width of the piece at any point throughout the length; pith knots which will not cause a leakage of grain; surface checks; a limited number of pin worm holes; loosened or heavy torn grain, or other machine defects that will lay without waste, and will not cause a leakage of grain; pitch pockets; pitch; pith, 1/6 the length of the piece; shakes that do not go through; firm red heart; stain; wane ¼" deep on the edge, ½" wide, and 1/6 the length of the piece. Wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece is admissible, provided the wane does not extend into the tongue or groove in dressed and matched stock or for ½ the thickness of the lap in Shiplapped stock; it may, however, extend into the groove or through the lap, or for ½ the thickness of the tongue, for a length of 10", provided the maximum width and length decrease in proportion to the increase in depth.

351. **No. 2 Longleaf Factory Flooring, Decking and Heavy Shiplap** must be suitable for use without waste, and will admit the following defects or their equivalent: Knots not necessarily sound,

the average diameter of any 1 knot not to exceed ½ the width of the piece; loose, hollow, or decayed knots, and knot holes, ½ the diameter of maximum size knots permitted; through checks; large worm holes; deep torn grain, or other machine defects; through pitch pockets; pitch; pith; through shakes; splits or streaks of advanced decay, not to exceed ¼ the length of the piece; unsound red heart; stain; wane.

Miscut or mismanufactured common stock 2" and thicker, which is not more than ⅛" scant of standard dressed thickness or width, shall be admitted in No. 2 Longleaf, provided such pieces are, in all other respects, as good as No. 1 Longleaf at point of miscut.

LONGLEAF DIMENSION

Definition of Species: Longleaf (Pinus palustris) material as described in these rules shall be manufactured from original growth Longleaf Yellow Pine trees, and shall show not less than six (6) annual rings to the inch, and contain not less than 1/3 summerwood (measured according to the density rule as adopted by the American Society for Testing Materials in 1933). The contrast in color between summerwood and springwood shall be sharp and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood. Summerwood is the measure of strength. Evidence of Longleaf shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the name "Longleaf" in conjunction with the official SPA grade-mark on each piece.

352. **Grades:** No. 1 Longleaf, No. 2 Longleaf, No. 3 Longleaf.

353. **Rough Sizes:** 2" thickness; 4", 6", 8", 10" and 12" wide. It is provided that rough Longleaf Dimension shall be not less than ⅛" thicker than the corresponding finished dry thickness, excepting that 20% of a shipment may not be less than 3/32" thicker than the corresponding standard finished, dry, thickness. Further, pieces ½" or more above nominal thickness, as may be produced by uneven sawing, may, at the option of the buyer, be rejected, or may be accepted as the

next lower grade. Dimension, ordered rough, if thicker than nominal thickness for dry or green stock, may be dressed to such thickness and when so dressed shall be considered as rough stock.

354. **Dressed Sizes:** 1⅝" thickness; 3⅝"; 5⅝"; 7½"; 9½" and 11½" width.

Dressed thickness for Standard Industrial Dimension is 1¾".

355. **Lengths:** Standard from 4′ to 24′ inclusive, in multiples of 2′, except that 9′ and 11′ shall be standard in 2x4, 2x6, 2x8; 13′ in 2x8 and 2x10, and 15′ in 2x10 and 2x12.

356. **Shorter Lengths:** Less than 9′ not included in standard shipments of No. 1 and No. 2; 20% of mixed 6 and 8-foot lengths are permitted in No. 3.

357. **Crook:** Based on 16-foot lengths the following crook permissible:

	No. 1	No. 2
2x 4	¾"	1"
2x 6	11/16"	15/16"
2x 8	⅝"	⅞"
2x10	½"	¾"
2x12	½"	¾"

Pieces longer or shorter than 16′ may have proportionate amounts of crook.

358. **Moisture Content:** The following maximum moisture content provisions govern in Longleaf Dimension:

No. 1 and No. 2 kiln-dried: Moisture content shall not exceed 15% in 90% of the pieces of an item of a shipment, and in the remainder shall not exceed 18%.

No. 1 and No. 2 air-dried: Moisture content shall not exceed 19% in 90% of the pieces of an item of a shipment, and in the remainder shall not exceed 22%.

Moisture content greater than this rule provides will lower the piece to the next lower grade.

Note: When material is specifically ordered as Dimension worked to a pattern, such as grooving, matching or shiplapping, it will be inspected under Dimension rules; when not so ordered, the specifications for "Factory Flooring, Heavy Roofing, Decking and Heavy Shiplap" shall apply.

359. **No. 1 Longleaf Dimension** must be suitable for use without waste as substantial structural material, and will admit the following defects or their equivalent: Any number of sound, encased, and pith knots, the average diameter of any 1 knot not to exceed 1½" in 2x4's, and in wider stock not to exceed 1/3 the cross section of the piece in the rough; pith knots or smaller defective knots which do not weaken the piece more than the knots aforesaid; surface or through checks; a limited number of medium worm holes, well scattered; loosened or torn grain, or other machine defects which will not cause waste; pitch pockets; pitch; pith; splits in ends that do not exceed in length the width of the piece; shakes that do not go through; firm red heart; stain; wane, ¼ the thickness, ¼ the width, and ¼ the length of the piece.

360. **No. 2 Longleaf Dimension** must be suitable for use without waste, and will admit the following defects or their equivalent: Knots not necessarily sound, the average diameter of any 1 knot not to exceed ½ the cross section of the piece in the rough; loose, hollow or decayed knots, and knot holes ½ the diameter of maximum size knots permitted; through checks; large worm holes; deep torn grain or other machine defects; through pitch pockets; pitch; pith; through shakes; splits or streaks of advanced decay not to exceed ¼ the length of the piece; unsound red heart; stain; wane.

Miscut or mismanufactured common stock 2" and thicker, which is not more than ⅛" scant of standard dressed thickness or width, shall be admitted in No. 2, provided such pieces are, in all other respects, as good as No. 1 at point of miscut.

361. **No. 3 Longleaf Dimension** will include all pieces falling below the grade of No. 2 which are suitable for use as cheap building material without wasting more than 25% of each piece of 1/3 of the number of pieces in any item of a shipment, but it must not be more than ½" scant of Standard finished width nor more than ⅜" scant of Standard finished thickness.

LONGLEAF SMALL TIMBERS

Definition of Species: Longleaf (Pinus palustris) material as described in these rules shall be manufactured from original growth Longleaf Yellow Pine trees, and shall show not less than six (6) annual rings to the inch, and contain not less than 1/3 summerwood (measured according to the density rule as adopted by the American Society for Testing Materials in 1933). The contrast in color between summerwood and springwood shall be sharp and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood. Summerwood is the measure of strength. Evidence of Longleaf shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the name "Longleaf" in conjunction with the official SPA grade-mark on each piece.

362. **Grades:** No. 1 Longleaf.

363. **Lengths:** Standard lengths are 10′ to 24′ inclusive, in multiples of 2′.

364. **Sizes:** 3″x3″ to and including 4″x6″.

365. **Rough Sizes:** Standard rough width or thickness shall not be less than ¼″ off of nominal; when ordered rough, if thicker or wider than aforementioned rough thickness or width, may be dressed to such thickness or width, and when so dressed shall be considered as rough stock. In shipments as rough pieces ½″ or more above nominal thickness, or 1″ above nominal width, for rough stock, as may be produced by uneven sawing, may, at the option of the buyer, be rejected, or may be accepted by agreement.

366. **Dressed Sizes:** When dressed S1S1E to S4S the dressed size shall be ⅜″ less than nominal size.

367. **No. 1 Longleaf Small Timbers** shall be graded under the same specifications as for No. 1 Longleaf Dimension, excepting that wane shall not exceed ¼ the width of the face in which it appears and 1/3 the length of the piece, and except that moisture content provisions for Dimension shall not apply.

SPECIFICATIONS
FOR
Shortleaf Yellow Pine

Structural Timbers (Dense)
Structural Joist and Plank (Dense)
***Dimension**
***Small Timbers**
***Decking and Heavy Shiplap**
***Factory Flooring**

Conforming to American Lumber Standards

Unit Working Stresses

:o:

*Shortleaf Dimension, Small Timbers, Factory Flooring and Decking may be obtained in Dense material. (See Grading Rules.)

Dense Shortleaf Yellow Pine shall show on 1 end or the other an average of at least 6 annual rings per inch and at least 1/3 summerwood; all as measured over the third, fourth, and fifth inches of a radial line from the pith. Wide-ringed material excluded by this rule will be acceptable, provided that the amount of summerwood as above measured shall be at least ½.

The contrast in color between summerwood and springwood shall be sharp and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood.

Evidence of Density shall be furnished by the manufacturer by branding under official SPA supervision the word "Dense" in conjunction with the official SPA grade-mark on each piece.

Explanation: Since the Density Rule is so much misinterpreted, the important parts of the rule have been printed in heavy type. The ring count is not the important part of the rule. Summerwood content is the measure of strength.

STRUCTURAL GRADES IN SHORTLEAF TIMBERS

(Sizes 6"x6" and Larger)

There are four structural grades in Shortleaf Southern Yellow Pine timbers, each written to conform to American Lumber Standards, for Dense material, and to each of which grades there has been assigned definite unit working stresses (see Shortleaf working stress tables). The extreme fibre in bending for each of the structural Shortleaf grades, when used in dry locations, or when preservatively treated for use in moist locations, is as follows:

Dense Select Structural	2000f; 1450c
Dense Structural	1800f; 1300c
Dense Structural Square Edge and Sound	1600f; 1200c
Dense No. 1 Structural	1200f; 850c

Grading rules covering each of these grades of Shortleaf Structural timbers are as follows:

GENERAL PROVISIONS FOR ALL STRUCTURAL GRADES

368. **Sizes:** Rough timbers of all structural grades must be full size when green. ¼" shall be allowed for each side surfaced.

369. **Density:** All Shortleaf Structural grades for timbers shall conform to the definition for density as adopted by the American Society for Testing Materials in 1933, wherein 1 end or the other of each piece shall show not less than 6 rings per inch and not less than 1/3 summerwood measured according to the Density Rule, or where the annual rings are less than 6 per inch there shall be at least ½ summerwood.

370. **Shakes and Checks:** All Structural grades of timbers shall contain only sound wood and be well manufactured; shall be free from end shakes and checks exceeding 1/3 the width of the end (narrow face).

(The above shake and check limitations give the designer 125# in horizontal shear; higher horizontal shear in any grade may be obtained by

specifying 150# or 175#. This will not change any other feature of the grading rule.)

371. **Measurement:** In beams and stringers (pieces of unequal faces) the size of a shake shall be taken as the shortest distance between lines enclosing the shake and parallel to the wide faces of the piece.

Measurement of shake is based on green material.

In posts (square timbers) the shake shall be measured in a straight line from end to end of opening of shake, and length of such straight-line shall not be greater than ¾ the actual face measurement whether rough or dressed. (See illustration on page 55.)

372. **Horizontal Shear Specifications:** Working stresses in horizontal shear are varied with shakes and checks and with increase in density; not with extent of exposure, nor size of piece.

For 125# in horizontal shear—shakes and checks in end must not exceed 1/3 the width (narrow face) at the end.

For 150# in horizontal shear—shakes and checks must not exceed ¼ the width (narrow face) at the end.

For 175# in horizontal shear—checks and shakes must not exceed 1/6 the width (narrow face) at the end.

373. **Preservative Treatment:** It is recommended these timbers are to be used in continuously dry locations when untreated, or are to be treated with a preservative recognized and approved by the Southern Pine Association for use in moist locations.

374. **General Knot Limitations:** In all structural timber grades the following paragraphs govern:

On narrow faces of beams or stringers the size of a knot shall be taken as its width between lines parallel to the edges of the piece. On wide faces the smallest diameter of a knot shall be taken as its size. The average diameter of a spike knot shall be taken as the average of its length and its maximum width.

The size of knots on narrow or horizontal faces may increase proportionately from the size al-

lowed in the middle third to twice that size at the ends of the piece.

The size of knots on wide or vertical faces may increase proportionately from the size allowed at the edge to that allowed at the center line.

Knots at edges of wide faces shall not exceed in size the knots permitted on the adjacent narrow face, but the size is measured on the least diameter instead of otherwise. Knots at edges of wide faces may increase proportionately from size allowed in the middle third to twice that size at the end of the piece.

In square timbers (usually posts) the size of a knot shall be measured on the mean or average diameter.

In square timbers the sum of the diameters of the knots on all sides within any 6″ of length shall not exceed twice the maximum size knot allowable; nor shall there be 2 of maximum allowable knots in the same 6″ of length of any face.

(Note: In specifying Shortleaf Structural timbers, use the exact grade names, including the word "Dense.")

Dense Select Structural (2000f; 1450c)

375. Dense Select Structural timbers shall conform to the definition for Density as adopted by the American Society for Testing Materials, in 1933; shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed 1/3 the width of end (narrow faces), and diagonal grain with slope greater than 1″ in 20″; no wane permitted; no heart limitations. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 71, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed ½ the width of that face:

Size	Unequal Face Timbers Narrow Face	Wide Face	Square Timbers
6″	¾″		¾″
8″	1″	1″	1″
10″	1″	1½″	1½″
12″	1¼″	1¾″	1¾″
14″	1¼″	1¾″	1¾″
16″	1¼″	2″	2″
18″		2″	2″

Dense Structural (1800f; 1300c)

376. Dense Structural timbers shall conform to the definition of Density as adopted by the American Society for Testing Materials, in 1933; shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed 1/3 the width of end (narrow face), and diagonal grain with slope greater than 1″ in 15″; wane shall not exceed ⅛ the width of face and ¼ of length of the piece on 1 corner, or the equivalent on 2 or more corners, on not to exceed 10% of the pieces. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 71, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed the width of that face:

Size	Unequal Face Timbers Narrow Face	Wide Face	Square Timbers
6″	1¼″		1¼″
8″	1½″	1¾″	1¾″
10″	1¾″	2¼″	2½″
12″	2″	2¾″	2¾″
14″	2″	3″	3″
16″	2¼″	3¼″	3¼″
18″		3¼″	3¼″

Dense Structural Square Edge and Sound (1600f; 1200c)

377. Dense Structural Square Edge and Sound timbers shall conform to the definition of Density as adopted by the American Society for Testing Materials, in 1933; shall contain only sound

wood and be well manufactured; shall be free from shakes and checks on ends which exceed 1/3 the width of end (narrow face), and diagonal grain with slope greater than 1″ in 12″; wane shall not exceed ⅛ width of face and ¼ length of piece on 1 corner, or the equivalent on 2 or more corners, on not to exceed 10% of the pieces; no limitations as to heart content. May contain sound knots, (which will include encased knots or knots with pith holes not to exceed ¼″) provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations" on page 71, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed the width of that face. Knot limitations are:

	Unequal Face Timbers		Square
Size	Narrow Face	Wide Face	Timbers
6″	1¾″		1¾″
8″	2¼″	2½″	2½″
10″	2½″	3″	3″
12″	2¾″	3¾″	3½″
14″	2¾″	4″	4″
16″	3″	4¼″	4¼″
18″		4½″	4½″

Dense No. 1 Structural (1200f; 850c)

378. Dense No. 1 Structural timbers shall conform to the definition of Density as adopted by the American Society for Testing Materials, in 1933; shall contain only sound wood and be well manufactured; shall be free from shakes and checks on ends which exceed 4/9 the width of end (narrow face), and diagonal grain with slope greater than 1″ in 10″; wane permitted if it does not exceed 1½″ on 2 faces for 1/3 the length of the piece; no limitations as to heart content. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided the size of any knot on the center line of the middle third of the length of the piece shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limi-

tations" on page 71, and provided that the aggregate diameter of all knots within the center half of the length of any face shall not exceed 1½ times the width of that face. This grade will admit of pith knots; unsound knots not to exceed 1½" diameter; and a limited number of pin worm holes well scattered. Knot limitations are:

	Unequal Face Timbers		Square
Size	Narrow Face	Wide Face	Timbers
6"	2¼"		2½"
8"	2¾"	3¾"	3"
10"	3"	4"	3¼"
12"	3¼"	4¾"	3¾"
14"	3½"	5¼"	4"
16"	3¾"	5½"	4¼"
18"		5¾"	5"

SHORTLEAF SQUARE EDGE AND SOUND TIMBERS
(6"x6" and Larger)

379. Unless otherwise specified, this grade will admit any amount of sapwood.

380. Square Edge and Sound Timbers shall be well manufactured and shall be free from defects such as injurious ring, or round shakes and through shakes that extend to the surface, unsound and loose knots and knots in groups that will materially impair the strength. Seasoning checks and sap stain shall not be considered defects.

381. Wane not exceeding ⅛ of the dimension of the face and ¼ of the length of the piece on 1 corner, or the equivalent on 2 or more corners on not to exceed 10% of the pieces, shall be admitted.

(Note—In the absence of knot limitations or limitations with regard to slope of grain, no stress value can be assigned to material under this grade. It is recommended that specifiers or buyers of this grade keep in mind the fact that strength-factor limitations hereinbefore mentioned not being specified for Shortleaf Square Edge and Sound Timbers, nothing higher than the foregoing described grade may be expected and the attempted assignment of a stress value will be questionable.)

UNIT WORKING STRESSES

(In pounds per square inch)

FOR STRUCTURAL SHORTLEAF SOUTHERN YELLOW PINE

(Where used untreated in constantly dry locations, or preservatively treated for use in wet locations, whether intermittent or continuous. See notes below table.)

Grades Based on the Provisions for Structural Material in American Lumber Standards.

	Dse. Sl. Str.	Dse. Str.	Dse.Str. SE&S	Dse. No.1 Str
POSTS AND COLUMNS (Shortleaf Grades)				
Compression Parallel to Grain (Used in dry locations, or properly preserved)	1,450	1,300	1,200	850
Modulus of Elasticity		1,600,000		
BEAMS AND STRINGERS (Shortleaf Grades)				
Extreme Fiber in Bending (In dry location or properly preserved)	2,000	1,800	1,600	1,200
Compression Across Grain (In dry location or properly preserved)	375	375	375	375
*Horizontal Shear	125	125	125	125
Modulus of Elasticity		1,600,000		
JOIST AND PLANK (See Notes a-b) (Shortleaf Grades)				
Extreme Fiber in Bending (In dry location or properly preserved)	.....	1,800	1,600	1,200
Compression Across Grain (In dry location or properly preserved)	.....	375	375	375
*Horizontal Shear	.....	125	125	125
Modulus of Elasticity		1,600,000		

(a)—These stresses are applicable used flat or on edge.

(b)—Compressive stresses listed under Posts and Columns for each respective grade may be applied to sizes classified as Joist and Plank, when used as compression members in designing trusses, towers, etc.

Shortleaf Structural Timbers are designed for use in continuously dry locations when untreated, such as enclosed buildings, roofs, and roof trusses.

Treated Material:

It is recommended that, for use in moist or wet locations, Shortleaf Structural material be treated in accordance with preservative and method approved by the Southern Pine Association and, when so treated, it is recommended that the above stresses be used for all characters of exposure.

***Note.—All Shortleaf Structural Grading Rules are written for 125 pounds shear, but 150 or 175 pounds can be specified. See Grading Rules.**

SHORTLEAF STRUCTURAL JOIST AND PLANK

(2″ to 5″ Thick, and 6″ to 16″ Wide)

382. **Dense Shortleaf Structural Joist and Plank** shall meet the requirements of the Density Rule as adopted by the American Society for Testing Materials, in 1933.

Evidence of Density shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the word "Dense" in conjunction with the official SPA grade-mark on each piece.

383. **Grades:** Dense Structural Joist and Plank; Dense Structural Square Edge and Sound, and Dense No. 1 Structural.

384. **Sizes:** Dressed — Standard thicknesses, S1S or S2S: 3/8″ off nominal. Standard widths, 6″ S1E or S2E: 3/8″ off; 8″ and wider, S1E or S2E, 1/2″ off nominal.

Rough—Green or dry, shall not be less in thickness than 1/4″ off nominal; for widths up to and including 6″ the rough width shall be no less than 1/4″ off nominal, and the widths greater than 6″ shall be no less than 3/8″ off nominal.

385. **Shake:** In Joist and Plank the size of a shake shall be taken as the shortest distance between two lines enclosing the shake and parallel to the wide faces of the piece. (See illustrations on pages 54 and 55.) Measurement of shake is based on green material.

386. **General Knot Limitations:** On wide faces of Joist and Plank the size of knot shall be the mean or average diameter. On narrow faces of Joist and Plank the size of a knot shall be taken as its width between lines parallel to the edges of the piece. The average diameter of a spike knot shall be taken as the average of its length and its maximum width.

The size of knots on wide faces may increase proportionately from the size allowed at the edge to that allowed at the center line. Knots on narrow faces and at edges of wide faces located outside the middle 1/3 of the length of the piece may increase proportionately from the size al-

lowed in the middle 1/3 to twice that size at the ends of the piece.

387. **Unit Working Stresses:** When used in continually dry locations the unit working stresses for Shortleaf Structural Joist and Plank shall be those in the table following the grading rules on Shortleaf Structural Timbers (page 77). Exactly the same working stresses are recommended when Shortleaf Structural Joist and Plank are used in intermittently or continually wet locations provided the material is treated in manner and with preservative approved by the Southern Pine Association.

Dense Structural (1800f)

388. Dense Structural Joist and Plank shall conform to the definition of Density as adopted by the American Society for Testing Materials, in 1933; shall be of sound wood and well manufactured; shakes and checks on end shall not exceed 1/3 the width of end (narrow face); wane shall not exceed ⅛ the width of any face and ¼ of the length of the piece on 1 corner; slope of grain shall not be greater than 1″ in 12″ in the center half of the length; no limitations as to heart or sap. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″), provided that the size of any 1 knot on the center line shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations," and provided the sum of diameters of knots in the center half of the length of any face shall not exceed 1½ times the width of the face. Knot limitations are as follows:

Width of Face	At Edge of Wide Face Middle Third of Length	On Center Line of Wide Face
4″	½″	1″
6″	1″	1¾″
8″	1¼″	2¼″
10″	1½″	2¾″
12″	2″	3½″
14″	2¼″	4″
16″	2¼″	4¼″

Knots on narrow faces of boxed heart pieces, middle third of length are limited as follows:

For 2″ thickness..... ½″
3″ thickness..... ¾″
4″ thickness.....1″
5″ thickness.....1¼″

Dense Structural Square Edge and Sound (1600f)

389. Dense Structural Square Edge and Sound Joist and Plank shall conform to the definition of Density as adopted by the American Society for Testing Materials, in 1933; shall be of sound wood and well manufactured; shakes and checks on end shall not exceed 1/3 the width of end (narrow face); wane shall not exceed ⅛ the width of any face and ¼ of the length of the piece on 1 corner; slope of grain shall not be greater than 1″ in 12″ in the center half of the length; no limitations as to heart or sap. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″) provided that the size of any 1 knot on the center line shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations," and provided the sum of diameters of knots in the center half of the length of any face shall not exceed 1½ times the width of the face. Knot limitations are as follows:

Width of Face	At Edge of Wide Face Middle Third of Length	On Center Line of Wide Face
4″	¾″	1¼″
6″	1¼″	2″
8″	1½″	2½″
10″	2″	3¼″
12″	2¼″	4″
14″	2½″	4½″
16″	2½″	4½″

Knots on narrow faces of boxed heart pieces, middle third of length are limited as follows:

For 2″ thickness..... ⅝″
3″ thickness.....1″
4″ thickness.....1¼″
5″ thickness.....1½″

Dense No. 1 Structural (1200f)

390. Dense No. 1 Structural Joist and Plank shall conform to the definition of Density as adopted by the American Society for Testing Materials, in 1933; shall be of sound wood and well manufactured; shakes and checks on end shall not exceed 4/9 the width of end (narrow face); wane shall not exceed ⅛ the width of any face and ¼ of the length of the piece on 1 corner; slope of grain shall not be greater than 1″ in 12″ in the center half of the length; no limitations as to heart nor sap. May contain sound knots (which will include encased knots or knots with pith holes not to exceed ¼″), provided that the size of any 1 knot on the center line shall not exceed the measurements hereinafter given, measured on the face in which it appears as prescribed in "General Knot Limitations," and provided the sum of diameters of knots in the center half of the length of any face shall not exceed 1½ times the width of the face. Knot limitations are as follows:

Width of Face	At Edge of Wide Face Middle Third of Length	On Center Line of Wide Face
4″	1″	1¾″
6″	1½″	2½″
8″	2″	3⅜″
10″	2½″	4¼″
12″	3″	5⅛″
14″	3¼″	5⅝″
16″	3⅜″	6″

Knots on narrow faces of boxed heart pieces, middle third of length are limited as follows:

For 2″ thickness..... ⅞″
3″ thickness.....1¼″
4″ thickness.....1¾″
5″ thickness.....2″

SHORTLEAF FACTORY FLOORING, HEAVY ROOFING, DECKING AND HEAVY SHIPLAP

Dense Shortleaf Factory Flooring, Heavy Roofing, Decking and Heavy Shiplap shall meet the requirements of the Density Rule as adopted by

the American Society for Testing Materials, in 1933.

Evidence of Density shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the word "Dense" in conjunction with the official SPA grade-mark on each piece.

391. **Grades:** Shortleaf Dense Standard Factory Flooring and Roofing Plank; No. 1 Shortleaf Flooring, Decking and Heavy Shiplap; No. 2 Shortleaf Decking and Heavy Shiplap.

392. **Sizes:** The following are standard dressed sizes:

THICKNESS		Width Nominal	WIDTH DRESSED		
Nominal	Dressed		D. & M.	Shiplapped	For Splines
2"	1⅝"	4"	3⅛"	3"	3⅛"
2½"	2⅛"	6"	5⅛"	5"	5⅛"
3"	2⅝"	8"	7⅛"	7"	7⅛"
4"	3⅝"	10"	9⅛"	9"	9⅛"
		12"	11⅛"	11"	11⅛"

(See cuts on Pages 99 to 104.)

393. **Lengths:** Standard lengths are 8′ to 24′, inclusive, in multiples of 2′. Longer lengths shall be considered special; odd or fractional lengths shall be counted as of the next higher even foot.

394. **Crook:** The following crook will be admitted in all grades of Shortleaf Heavy Flooring, Plank, Decking and Shiplap, based on 16-foot lengths:

For Standard and No. 1 Grades	For No. 2 Grade
4" wide.....¾"	4" wide.....1"
6" wide.....11/16"	6" wide.....15/16"
8" wide.....⅝"	8" wide.....⅞"
10" wide.....½"	10" wide.....¾"

395. **Standard Workings:** The standard workings for Heavy Flooring shall be as follows: For 2" and 2½" material, the tongue shall be 7/16" thick and ⅜" wide. For 3" and thicker material the tongue shall be ¾" thick and ⅜" wide. The groove in heavy matching should be 1/16" wider than the thickness of the tongue and 1/16"

deeper than the width of the tongue. The recession of lower lip should be 1/16". (See cuts on pages 99 to 101.)

In standard matching of Factory Flooring and Roofing Plank, the tongue and groove shall be located ¼ the nominal (rough) thickness from the bottom of the piece. (See cuts on pages 99 to 101.)

When grooved for splines, the groove shall be the same width and depth as is provided for in matched material of the same thickness and shall be S2S and center grooved. (See cuts on pages 102 to 104.)

396. **Standard Splines:** For 2" and 2½" material the splines shall be 7/16" thick by ¾" wide; for 3" and thicker material the splines shall be ¾" thick by ¾" wide. Splines shall be rounded on all 4 corners on ⅛" radius.

397. **Standard Working for Beaded and "V" Factory Flooring** shall be as follows: Standard Bead ½" wide, 8/32" thick and depressed 1/32" below line of cut; over-all width channel ⅞". Standard V ¼" wide and ¼" deep on edge; Center V shall be ¼" deep and ½" wide.

The lap in Heavy Shiplap shall be ½" wide, occupying ½ the finished thickness of the piece. (See cut on page 105.)

Workings not herein provided for shall be considered special.

398. **Special Provisions:** Pieces of D&M with 5/16" of tongue and shiplap with ⅜" of lap on 1 edge will be admitted in all grades.

399. **Shortleaf Dense Standard Factory Flooring and Roofing Plank** must be free from wane, but will admit the following defects, or their equivalent: Sound knots, the average diameter of any 1 knot not to exceed ¼ the width of the piece; pith knots; surface checks; a limited number of pin worm holes well scattered; loosened or heavy torn grain or other machine defects that will lay without waste; pitch pockets; pitch; pith, 1/6 the length of the piece; shakes that do not go through; splits in ends, that do not exceed in length the width of the piece; firm red heart not to exceed 15% of the area of the face; stain.

When worked S2S&M, B1E1S the bead should be worked on the best side of the piece.

400. **No. 1 Shortleaf Factory Flooring, Decking and Heavy Shiplap** must be suitable for use without waste; and will admit the following defects, or their equivalent: Any number of sound knots, the diameter of any 1 knot not to exceed 1/3 the width of the piece; pith knots which will not cause a leakage of grain; surface checks; a limited number of pin worm holes; loosened or heavy torn grain, or other machine defects that will lay without waste, and will not cause a leakage of grain; pitch pockets; pitch; pith, 1/6 the length of the piece; shakes that do not go through; firm red heart; stain; wane ¼" deep on the edge, ½" wide, and 1/6 the length of the piece. Wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece, is admissible, provided the wane does not extend into the tongue or groove in dressed and matched stock or for ½ the thickness of the lap in Shiplapped stock; it may, however, extend into the groove or through the lap, or for ½ the thickness of the tongue, for a length of 10", provided the maximum width and length decrease in proportion to the increase in depth.

401. **No. 2 Shortleaf Factory Flooring, Decking and Heavy Shiplap** must be suitable for use without waste, and will admit the following defects or their equivalent: Knots not necessarily sound, the average diameter of any 1 knot not to exceed ½ the width of the piece; loose, hollow, or decayed knots, and knot holes, ½ the diameter of maximum size knots permitted; through checks; large worm holes; deep torn grain, or other machine defects; through pitch pockets; pitch; pith; through shakes; splits or streaks of advanced decay, not to exceed ¼ the length of the piece; unsound red heart; stain; wane.

Miscut or mismanufactured common stock 2" and thicker, which is not more than ⅛" scant of standard dressed thickness or width, shall be admitted in No. 2 Shortleaf, provided such pieces are, in all other respects, as good as No. 1 Shortleaf at point of miscut.

SHORTLEAF DIMENSION

Dense Shortleaf Dimension shall meet the requirements of the Density Rule as adopted by the American Society for Testing Materials, in 1933. Evidence of Density shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the word "Dense" in conjunction with the official SPA grade-mark on each piece.

402. **Grades:** No. 1 Dense Shortleaf; No. 1 Shortleaf; No. 2 Shortleaf; No. 3 Shortleaf.

403. **Rough Sizes:** 2″ thickness; 4″, 6″, 8″, 10″ and 12″ wide. It is provided that rough Shortleaf Dimension shall be not less than ⅛″ thicker than the corresponding finished dry thickness, excepting that 20% of the shipment may not be less than 3/32″ thicker than the corresponding standard finished dry thickness. Further, pieces ½″ or more, above nominal thickness as may be produced by uneven sawing, may, at the option of the buyer, be rejected, or may be accepted as the next lower grade. Dimension, ordered rough, if thicker than nominal thickness for dry or green stock, may be dressed to such thickness and when so dressed shall be considered as rough stock.

404. **Dressed Sizes:** 1⅝″ thickness; 3⅝″, 5⅝″, 7½″, 9½″ and 11½″ width.
Dressed thickness for Standard Industrial Dimension is 1¾″.

405. **Lengths:** Standard from 4′ to 24′ inclusive, in multiples of 2′, except that 9′ and 11′ shall be standard in 2x4, 2x6, 2x8; 13′ in 2x8 and 2x10, and 15′ in 2x10 and 2x12.

406. **Shorter Lengths:** Less than 9′ not included in standard shipments of No. 1 Dense Shortleaf, No. 1 Shortleaf and No. 2 Shortleaf; 20% of mixed 6 and 8-foot lengths are permitted in No. 3 Shortleaf.

407. **Crook:** Based on 16-foot lengths the following crooks are permissible:

	No. 1	No. 2
2x 4	¾″	1″
2x 6	11/16″	15/16″
2x 8	⅝″	⅞″
2x10	½″	¾″
2x12	½″	¾″

Pieces longer or shorter than 16′ may have proportionate amounts of crook.

408. **Moisture Contents:** The following maximum moisture content provisions govern in Shortleaf Dimension:

No. 1 and No. 2 kiln-dried: Moisture content shall not exceed 15% in 90% of the pieces of an item of a shipment, and in the remainder shall not exceed 18%.

No. 1 and No. 2 air-dried: Moisture content shall not exceed 19% in 90% of the pieces of an item of a shipment, and in the remainder shall not exceed 22%.

Moisture content greater than this rule provides will lower the piece to the next lower grade.

Note: When material is specifically ordered as Dimension worked to a pattern, such as grooving, matching or shiplapping, it will be inspected under Dimension rules; when not so ordered, the specifications for "Factory Flooring, Heavy Roofing, Decking and Heavy Shiplap" shall apply.

409. **No. 1 Dense Shortleaf Dimension:** Each piece shall show, at 1 end or the other, at least 6 annual rings, and at least 1/3 summerwood, measured according to the Density Rule, or if less than 6 rings per inch there shall be at least ½ summerwood. The following defects or their equivalent are admitted: Any number of sound, encased, and pith knots, the average diameter of any 1 knot not to exceed 1½″ in 2x4's, and in wider stock not to exceed 1/3 the cross section of the piece in the rough; pith knots or smaller defective knots which do not weaken the piece more than the knots aforesaid; surface or through checks; a limited number of medium worm holes, well scattered; loosened or torn grain, or other machine defects which will not cause waste; pitch pockets; pitch; pith; splits in ends, that do not exceed in length the width of the piece; shakes that do not go through; firm red heart; stain; wane, ¼ the thickness, ¼ the width and ¼ the length of the piece.

410. **No. 1 Shortleaf Dimension:** Density provision is not included; otherwise grade same as No. 1 Dense Shortleaf.

411. **No. 2 Shortleaf Dimension** must be suitable for use without waste, and will admit the following defects or their equivalent: Knots not necessarily sound, the average diameter of any 1 knot not to exceed ½ the cross section of the piece in the rough; loose, hollow, or decayed knots, and knot holes, ½ the diameter of maximum size knots permitted; through checks; large worm holes; deep torn grain, or other machine defects; through pitch pockets; pitch; pith; through shakes; splits or streaks of advanced decay, not to exceed ¼ the length of the piece; unsound red heart; stain; wane.

Miscut or mismanufactured common stock 2" and thicker, which is not more than ⅛" scant of standard dressed thickness or width, shall be admitted in No. 2 Common, provided such pieces are, in all other respects, as good as No. 1 Common at point of miscut.

412. **No. 3 Shortleaf Dimension** will include all pieces falling below the grade of No. 2 which are suitable for use as cheap building material without wasting more than 25% of each piece of 1/3 of the number of pieces in any item of a shipment, but it must not be more than ½" scant of Standard finished width nor more than ⅜" scant of Standard finished thickness.

SHORTLEAF SMALL TIMBERS

Dense Shortleaf Small Timbers shall meet the requirements of the Density Rule as adopted by the American Society for Testing Materials, in 1933.

Evidence of Density shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the word "Dense" in conjunction with the official SPA grade-mark on each piece.

413. **Grades:** No. 1 Dense Shortleaf; No. 1 Shortleaf; No. 2 Shortleaf.

414. **Lengths:** Standard lengths are 10′ to 24′, inclusive, in multiples of 2′.

415. **Sizes:** 3"x3" to and including 4"x6".

416. **Rough Sizes:** Standard rough width or thickness shall not be less than ¼" off nominal;

when ordered rough, if thicker or wider than aforementioned rough thickness or width, may be dressed to such thickness or width, and when so dressed shall be considered as rough stock. In shipments as rough, pieces ½" or more above nominal thickness, or 1" above nominal width, for rough stock, as may be produced by uneven sawing, may, at the option of the buyer, be rejected, or may be accepted by agreement.

417. **Dressed Sizes:** When dressed S1S1E or S4S the dressed size shall be ⅜" less than nominal size.

418. **No. 1 Dense Shortleaf Small Timbers** shall be graded under the same specifications as for No. 1 Dense Shortleaf Dimension, excepting that wane shall not exceed ¼ the width of the face in which it appears and 1/3 the length of the piece, and except that moisture content provisions for Dimension shall not apply.

419. **No. 1 Shortleaf Small Timbers** shall be graded the same as for No. 1 Dense Shortleaf Small Timbers, excepting that the density rule does not apply, nor moisture content provisions.

420. **No. 2 Shortleaf Small Timbers** shall be graded under the same specifications as for No. 2 Shortleaf Dimension, with the addition that crooks are admitted if they do not exceed the width of the wide face of the piece; splits are admitted if they do not exceed in length 4 times the measurement of the wide face of the piece; no limitations on size or character of knots, and wane is admitted if it does not exceed ½ the length of the piece and ½ the width of any face in which it appears; variation in size is permitted if it does not exceed ⅜" less than standard finished thickness and ½" less than standard finished width; failure to dress on any side is admissible; skips in dressing of any kind are admissible. Moisture content provisions do not apply.

UTILITY TIMBERS AND HEAVY JOIST

Either Longleaf or Shortleaf Southern Yellow Pine

421. **Grades:** #1 Common.

422. **Sizes:** 3" x 8" and larger.

423. **Rough Sizes:** For faces 6″ and less, standard rough width or thickness shall be not less than ¼″ off of nominal; for faces greater than 6″, standard rough width or thickness shall be not less than ⅜″ off of nominal.

424. **Dressed Sizes:** For faces 6″ and less, standard dressed width or thickness shall be not less than ⅜″ off of nominal; for faces greater than 6″, standard dressed width or thickness shall be not less than ½″ off of nominal.

425. **#1 Common Utility Timbers and Heavy Joists** will permit of sound, encased and pith knots not exceeding in size one-quarter the width of face in which it appears, measured against the nominal dimension; unsound knots if not more than 1″ in diameter on faces 6″ and less, and 1½″ on faces greater than 6″; wane not exceeding 1½″ on one corner one-third the length of the piece, or the equivalent on two or more corners; shakes and checks not extending more than one-sixth the length of the piece, and at any angle in the cross section; limited number of pin worm holes well scattered, sap stain and seasoning checks; no restrictions as to density nor amount of sap.

SOUTHERN PINE STRUCTURAL GRADES TO MEET A. R. E. A. OR A. S. T. M. CODES

Herewith is presented a simple method for Specifying Southern Pine grades which will meet the Coded Specifications of A. R. E. A. and A. S. T. M., excepting that Southern Pine grades are higher than the basic provisions used in A. R. E. A. and A. S. T. M..

The A. R. E. A. and A. S. T. M. Coded Specifications do not make provisions for material with greater bending than 1750#, while two Southern Pine grades are higher—viz., 1800# and 2000#.

Attention of the engineer is directed to the foregoing statements—he may design with greater unit working stresses at considerable saving.

When the engineer finds desirable material specified by Code in A. R. E. A. or A. S. T. M. he may specify in Southern Pine the grades named herewith.

Note: The first grade named in each case is Longleaf, and the second grade is Shortleaf. In writing specification for a Southern Pine grade as herein suggested, please be certain to add the phrase " . . . . . according to Southern Pine Association grading rules of 1932."

Beams and Stringers (1800# Grades)

For grade better than A. S. T. M. No. 1—specify "Longleaf Select Structural," or "Dense Select Structural Southern Pine." (Bending 2000#.)

For A. S. T. M. No. 1—"Prime Structural Longleaf, 85% heart across each face at all points" or "Dense Structural Southern Pine, 85% heart across each face at all points." (Bending 1800#.)

For A. S. T. M. No. 2—"Prime Structural Longleaf," or "Dense Structural Southern Pine." (Bending 1800#.)

For A. S. T. M. No. 3—"Prime Structural Longleaf, wane ⅛ width of face permitted," or "Dense Structural Southern Pine, wane ⅛ width of face permitted."

For A. S. T. M. No. 4—"Dense Structural Southern Pine."

For A. S. T. M. No. 5—"Dense Structural Southern Pine, wane ⅛ width of face permitted."

Note: A. S. T. M. Nos. 6 to 10 incl. are intended only for Douglas Fir.

Note: A. S. T. M. Nos. 11-15 incl. are non-dense, for which neither species of Southern Pine has a grade. But it is recommended that the following table be employed, although a dense grade will always be delivered.

For	Specify
A.S.T.M. No. 11	As for A.S.T.M. No. 1
A.S.T.M. No. 12	As for A.S.T.M. No. 2
A.S.T.M. No. 13	As for A.S.T.M. No. 3
A.S.T.M. No. 14	As for A.S.T.M. No. 4
A.S.T.M. No. 15	As for A.S.T.M. No. 5

Beams and Stringers (1600# Grades)

The A. S. T. M. and A. R. E. A. coded specifications do not make provision for excellent grades having bending stress in the range between 1200# and 1750#. Southern Pine offers three grades, two in Longleaf and one in Shortleaf, which have bending in extreme fibre of 1600#. Refer to rules on these grades before decision as to specification.

Beams and Stringers (1200# Grades)

For Common grades in Beams and Stringers (bending 1200#) the A. S. T. M. coded specifications in Southern Yellow Pine are as follows:

For A. S. T. M. No. 16—"No. 1 Structural Longleaf, 85% heart girth measure, square edges," or "Dense No. 1 Structural Southern Pine, 85% heart girth measure, square edges." (Bending 1200#.)

For A. S. T. M. No. 17—"No. 1 Structural Longleaf, square edges," or "Dense No. 1 Structural Southern Pine, square edges." (Bending 1200#.)

For A. S. T. M. No. 18—"No. 1 Structural Longleaf, wane permitted not exceeding ¼ width of any face," or "Dense No. 1 Structural South-

ern Pine, wane permitted not exceeding ¼ width of any face." (Bending 1200#.)

For A. S. T. M. No. 19—"Dense No. 1 Structural Southern Pine, square edges." (Bending 1200#.)

For A. S. T. M. No. 20—"Dense No. 1 Structural Southern Pine, wane permitted not exceeding ¼ width of any face." (Bending 1200#.)

For A. S. T. M. No. 21-25, inclusive, are the same as Nos. 16-20, inclusive, with the exception that density is not required. The lack of density is not expressed in Southern Pine Structural grading rules.

Structural Joist And Plank (1800# Grades)

For A. S. T. M. No. 26—"Longleaf Prime Structural, 85% heart across faces at all points, square edges," **or** "Dense Structural Southern Pine, 85% heart across faces at all points." (1800# grade.)

For A. S. T. M. No. 27—"Longleaf Prime Structural, square edge," **or** "Dense Structural Southern Pine, square edges." (1800# grade.)

For A. S. T. M. No. 28—"Longleaf Prime Structural," **or** "Dense Structural Southern Pine." (1800# grade.)

For A. S. T. M. No. 29—"Dense Structural Southern Pine, square edge." (1800# grade.)

For A. S. T. M. No. 30—"Dense Structural Southern Pine." (1800# grade.)

Note: A. S. T. M. Nos. 31-36 are for Douglas Fir.

A. S. T. M. Nos. 36-40 are parallel to Nos. 26-30 above, excepting density is not required. Since elimination of density reduces bending stresses by 1/7 those given above, indicating the specifier can use a 1600# grade, it is recommended that the following be specified, in the knowledge that a 1600# grade, with density, will be delivered.

Joist and Plank (1600# Grades)

For A. S. T. M. No. 36—"Longleaf Merchantable Structural, 85% heart, square edge," **or** "Structural Square Edge and Sound Southern Pine, 85% heart, square edge." (1600# grade.)

For A. S. T. M. No. 37—"Longleaf Structural Square Edge and Sound, square edge," **or** "Structural Square Edge and Sound Southern Pine, square edge." (1600# grade.)

For A. S. T. M. No. 38—"Longleaf Structural Square Edge and Sound," **or** "Structural Square Edge and Sound Southern Pine." (1600# Grade.)

For A. S. T. M. No. 39—"Structural Square Edge and Sound Southern Pine, square edge." (1600# grade.)

For A. S. T. M. No. 40—"Structural Square Edge and Sound Southern Pine." (1600# grade.)

Joist and Plank (1200# Grade)

(**Note:** There are no Joist and Plank grades in Longleaf as low as permitted under A. S. T. M.'s Common Structural. Therefore, no Longleaf grades are given below.)

For A. S. T. M. No. 41—"Dense No. 1 Structural Southern Pine, 85% heart, square edge." (1200# grade.)

For A. S. T. M. No. 42—"Dense No. 1 Structural Southern Pine, square edge." (1200# grade.)

For A. S. T. M. No. 43—"Dense No. 1 Structural Southern Pine." (1200# grade.)

For A. S. T. M. No. 44—"Dense No. 1 Structural Southern Pine, square edge." (1200# grade.)

For A. S. T. M. No. 45—"Dense No. 1 Structural Southern Pine." (1200# grade.)

Inasmuch as the grading rules in Southern Pine Common Structural grades, in Longleaf and Shortleaf, are better than A. S. T. M. basic provisions for a 1200# grade, the following may be followed:

For A.S.T.M. No. 46—Specify as for No. 41
For A.S.T.M. No. 47—Specify as for No. 42
For A.S.T.M. No. 48—Specify as for No. 43
For A.S.T.M. No. 49—Specify as for No. 44
For A.S.T.M. No. 50—Specify as for No. 45

Note: The designer may as well base his calculations on 1400# in bending, since that is the character of material he will get under the rules.

Posts (1300# Grade when l/d is 10)

For A. S. T. M. No. 51—"Prime Structural Longleaf, 85% heart, square edge," or "Dense Structural Southern Pine, 85% heart, square edge."

For A. S. T. M. No. 52—"Prime Structural Longleaf, square edge," or "Dense Structural Southern Pine, square edge."

For A. S. T. M. No. 53—"Prime Structural Longleaf," or "Dense Structural Southern Pine."

For A. S. T. M. No. 54—"Dense Structural Southern Pine, square edge."

For A. S. T. M. No. 55—"Dense Structural Southern Pine."

Note: A. S. T. M. Nos. 56-60 inclusive, are for Douglas Fir.

A. S. T. M. Nos. 61-65 inclusive, cover same specifications as for Nos. 51-55 excepting for density, and, inasmuch as this permits a piece having 1/7 less in bending than those in Nos. 51-55, the specifier may take the 1600# grade in either Longleaf or Shortleaf, and thus the translations are:

Posts (1200# Grade when l/d is 10)

For A. S. T. M. No. 61—"Structural Square Edge and Sound Longleaf, 85% heart, square edges," or "Dense Structural Square Edge and Sound Southern Pine, 85% heart, square edges."

For A. S. T. M. No. 62—"Structural Square Edge and Sound Longleaf, square edges," or "Dense Structural Square Edge and Sound, Southern Pine, square edges."

For A. S. T. M. No. 63—"Structural Square Edge and Sound Longleaf," or "Dense Structural Square Edge and Sound Southern Pine."

For A. S. T. M. No. 64—"Dense Structural Square Edge and Sound Southern Pine, square edges."

For A. S. T. M. No. 65—"Dense Structural Square Edge and Sound Southern Pine."

Posts (1200# Grade when l/d is 10)

For A. S. T. M. No. 66—"Structural Square Edge and Sound Longleaf, 85% heart, square edges," or "Dense Structural Square Edge and Sound Southern Pine, 85% heart, square edges."

For A. S. T. M. No. 67—"Structural Square Edge and Sound Longleaf, square edges," or "Dense Structural Square Edge and Sound, Southern Pine, square edges."

For A. S. T. M. No. 68—"Structural Square Edge and Sound Longleaf," or "Dense Structural Square Edge and Sound Southern Pine."

For A. S. T. M. No. 69—"Dense Structural Square Edge and Sound Southern Pine, square edges."

For A. S. T. M. No. 70—"Dense Structural Square Edge and Sound Southern Pine."

Posts (1000# Longleaf Grade when l/d is 10)
(900# Shortleaf Grade when l/d is 10)

For A. S. T. M. No. 71—"No. 1 Structural Longleaf, 85% heart, square edges," or "Dense No. 1 Structural Southern Pine, 85% heart, square edges."

For A. S. T. M. No. 72—"No. 1 Structural Longleaf, square edges," or "Dense No. 1 Structural Southern Pine, square edges."

For A. S. T. M. No. 73—"No. 1 Structural Longleaf," or "Dense No. 1 Structural Southern Pine."

For A. S. T. M. No. 74—"Dense No. 1 Structural Southern Pine, square edges."

For A. S. T. M. No. 75—"Dense No. 1 Structural Southern Pine.

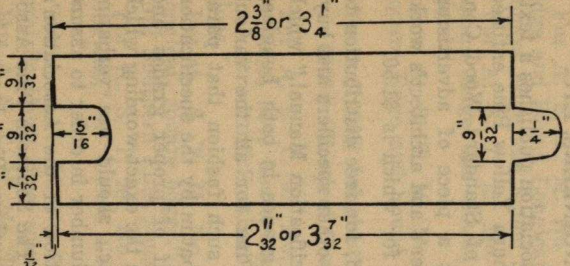
ADDITIONAL INFORMATION FOR ARCHITECTS, ENGINEERS, ETC.

The Southern Pine Association publishes a textbook on the use of Southern Yellow Pine entitled "Southern Pine Manual of Standard Wood Construction." This is not a piece of advertising literature, but an engineer's and architect's working handbook, the price for which is $1.50.

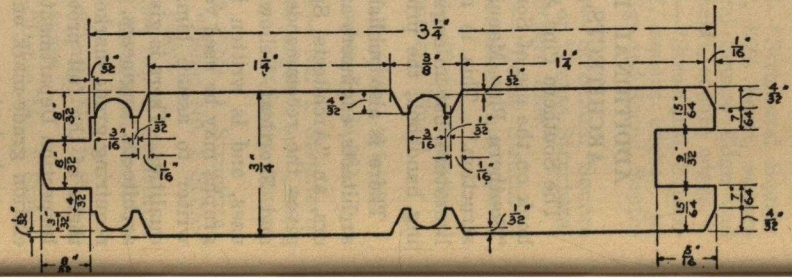
There is also published, for free distribution to architects, engineers and other specifiers and buyers, an "Architects' Specification Manual," which gives the recommended grades in both Longleaf and Shortleaf Yellow Pine for all the various uses, and is written in such fashion that paragraphs may be used verbatim by the specification writer to assure himself of proper grades and qualities. There is given the exact wording which architects, engineers, etc., should use verbatim requiring grade-marked lumber in order to assure them of the full protection of the Association's Inspection Department. The Southern Pine Association grade-mark on Southern Pine lumber has no equivalent.

STANDARD SIZES OF YELLOW PINE FLOORING AND PARTITION

1 x 3 and 1 x 4 Flooring.

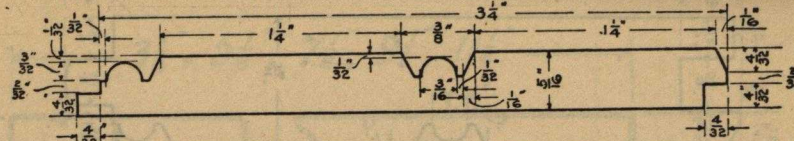


1 x 4 Partition.

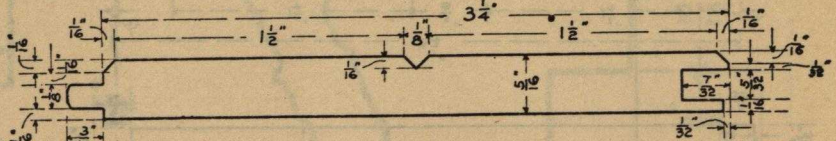


STANDARD SIZES AND PATTERNS OF YELLOW PINE CEILING

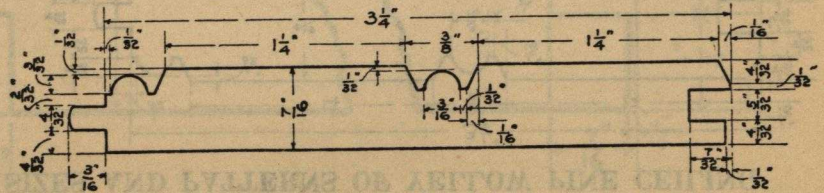
5/16" Ceiling, Shiplapped.



5/16" Ceiling, D. & M.

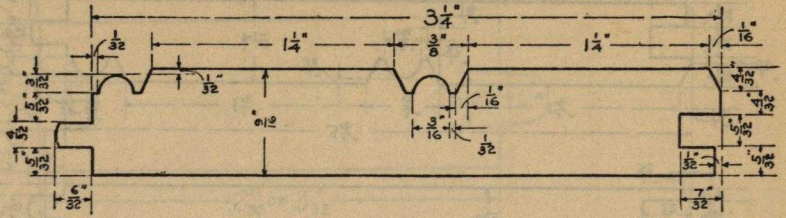


7/16" Ceiling.

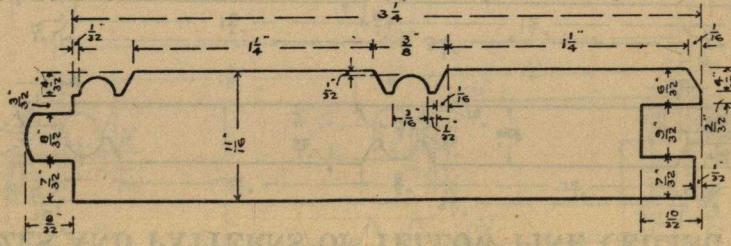


STANDARD SIZES AND PATTERNS OF YELLOW PINE CEILING

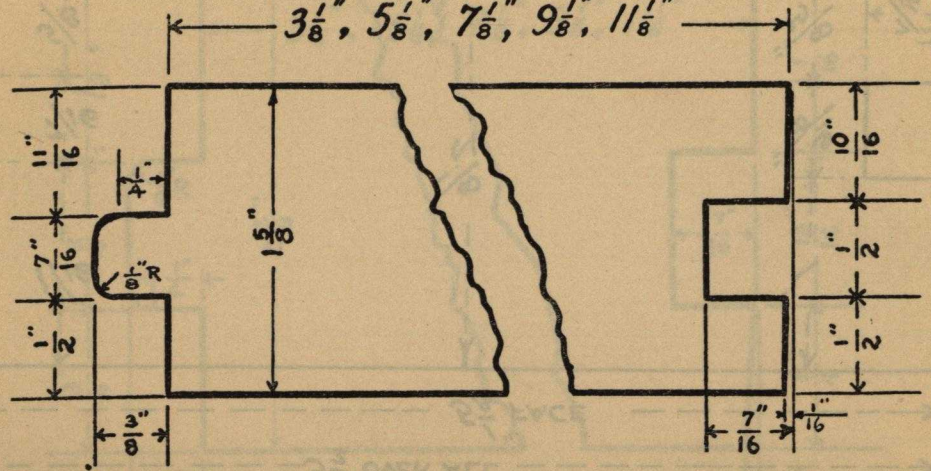
9/16″ Ceiling.



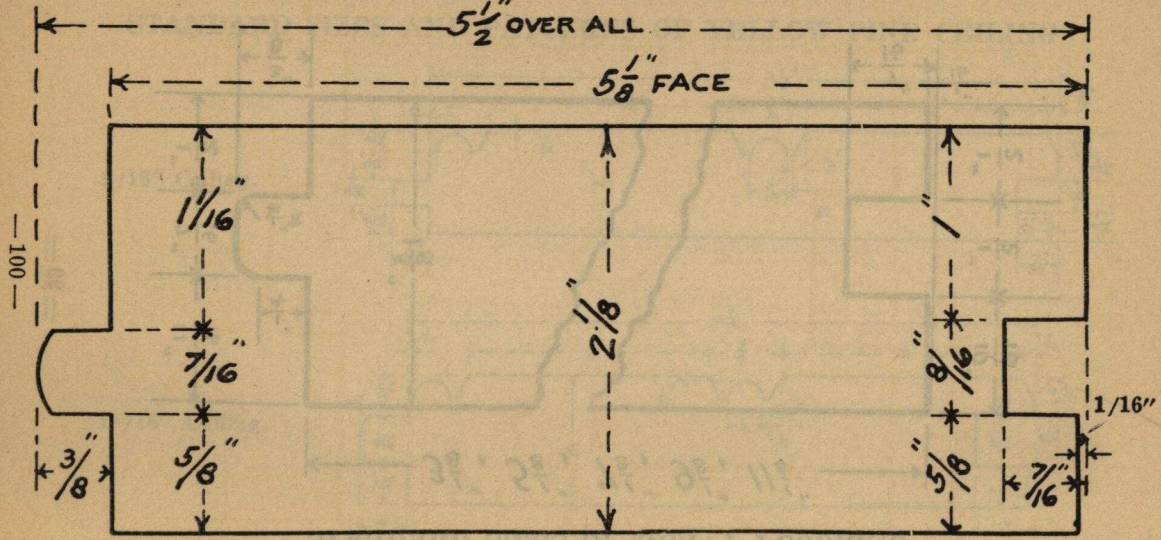
11/16″ Ceiling.



STANDARD SIZES OF HEAVY FLOORING

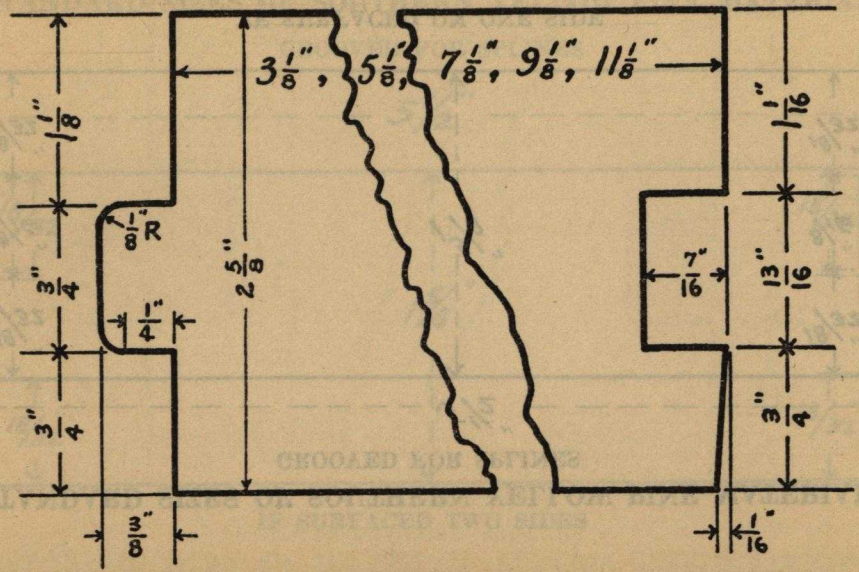


STANDARD SIZES OF HEAVY FLOORING



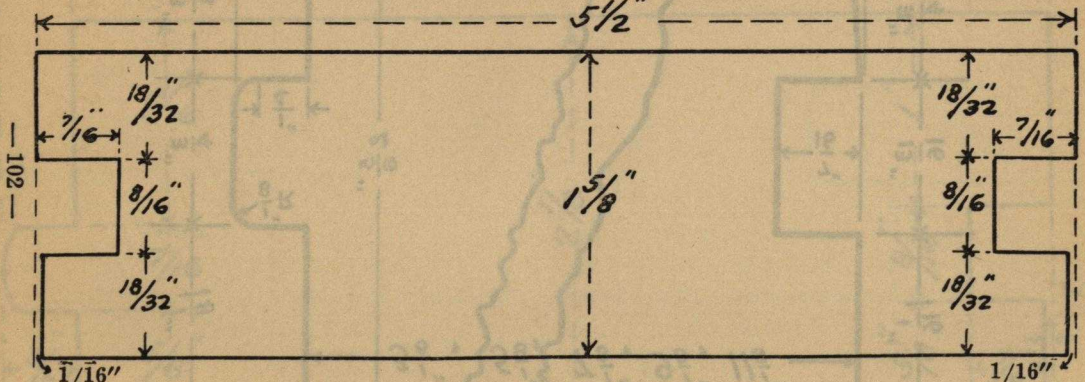
2½ x 6 FLOORING—SAME WORKING FOR ALL WIDTHS.

STANDARD SIZES OF HEAVY FLOORING



STANDARD SIZES OF SOUTHERN YELLOW PINE MATERIAL

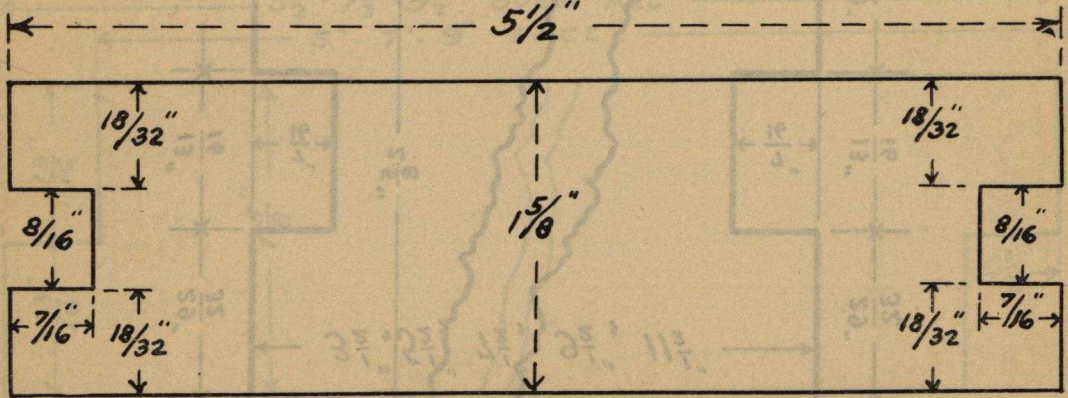
GROOVED FOR SPLINES



IF SURFACED ON ONE SIDE

STANDARD SIZES OF SOUTHERN YELLOW PINE MATERIAL

GROOVED FOR SPLINES



IF SURFACED TWO SIDES

STANDARD SIZES OF SOUTHERN YELLOW PINE MATERIAL

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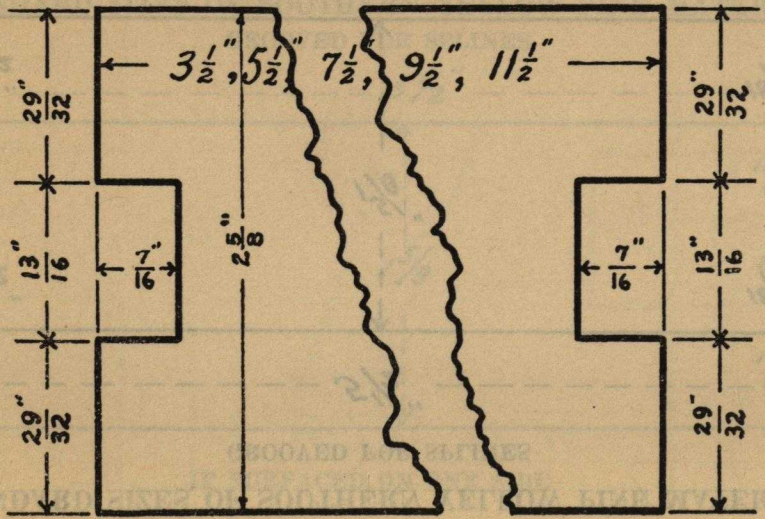
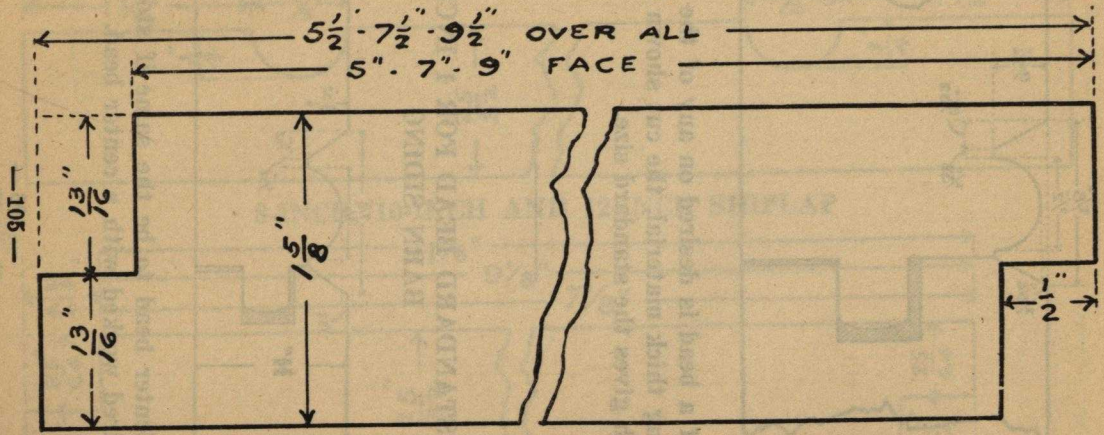
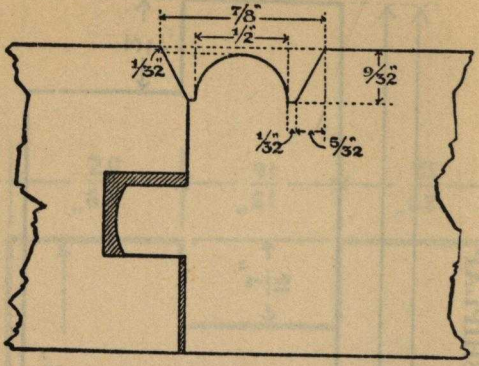


3" x 4", 6", 8", 10" and 12"

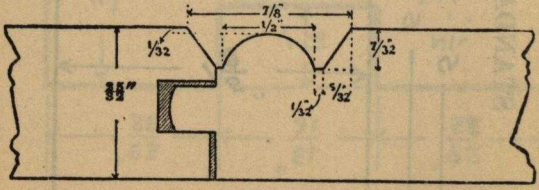
STANDARD SIZES OF HEAVY SHIPLAP





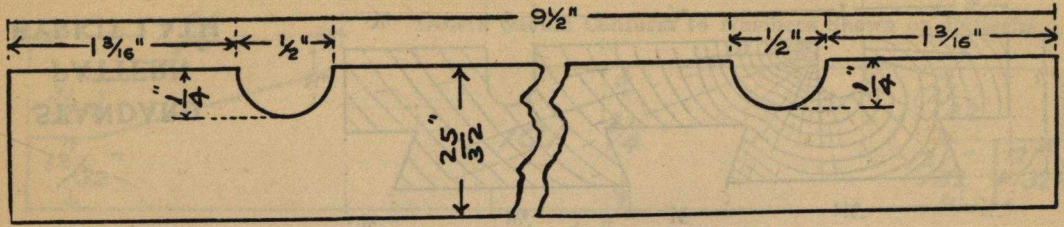
If a bead is desired on any of the foregoing thick material, the cut shown herewith gives the standard size.

STANDARD BEAD FOR 1 INCH BARN SIDING

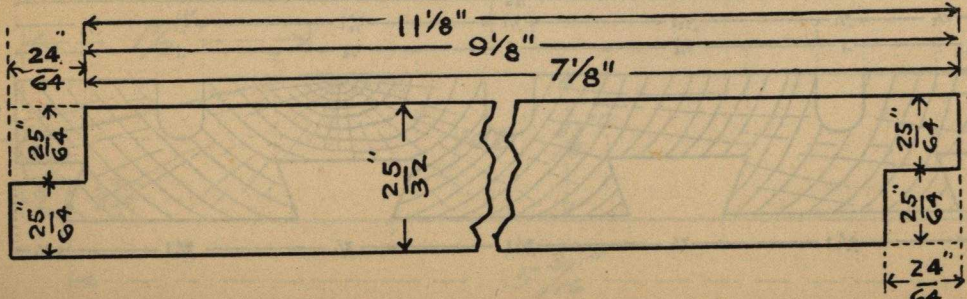


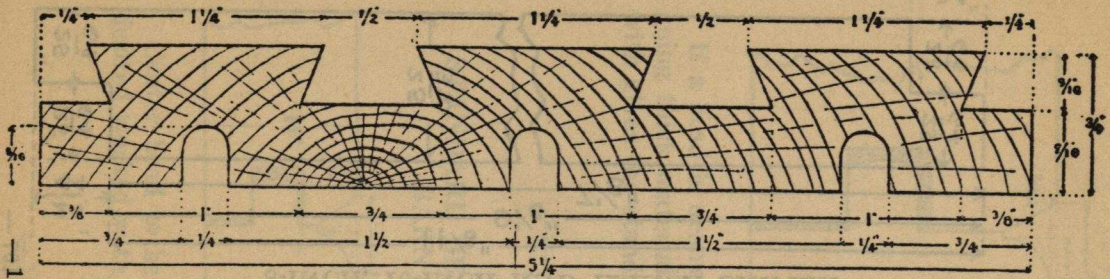
Center bead to be the same if stock is desired worked with a center bead.

STANDARD GROOVE FOR GROOVED ROOFING

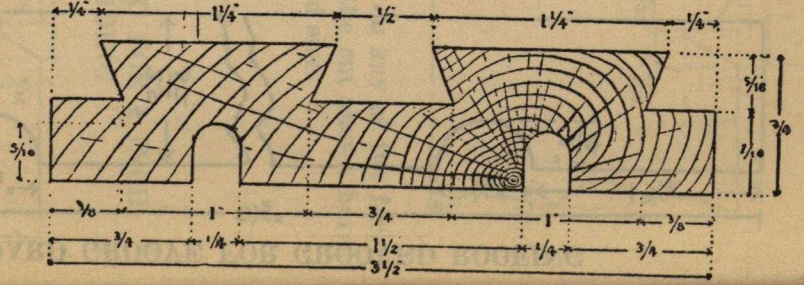


8-INCH, 10-INCH AND 12-INCH SHIPLAP



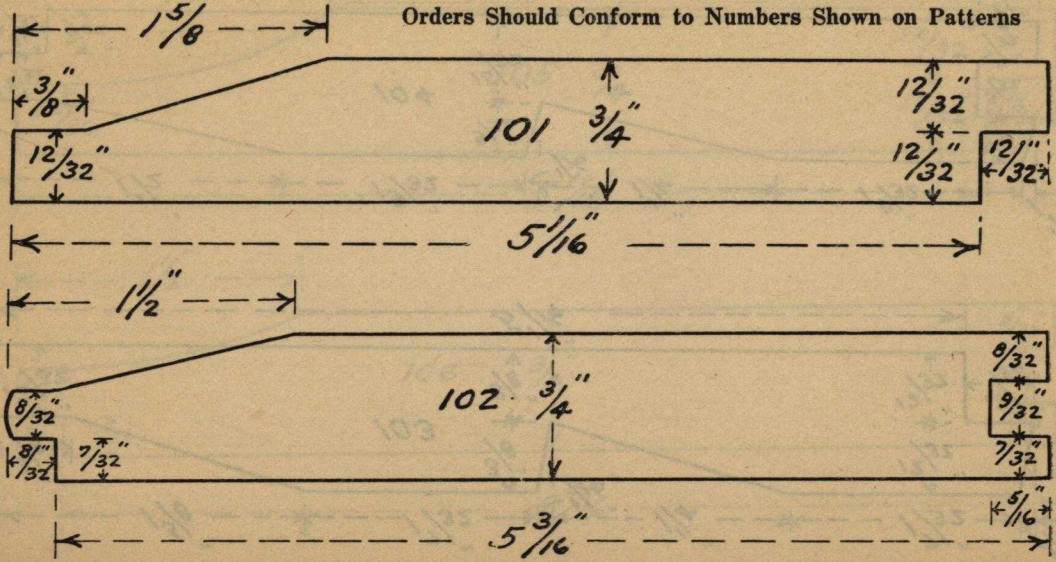


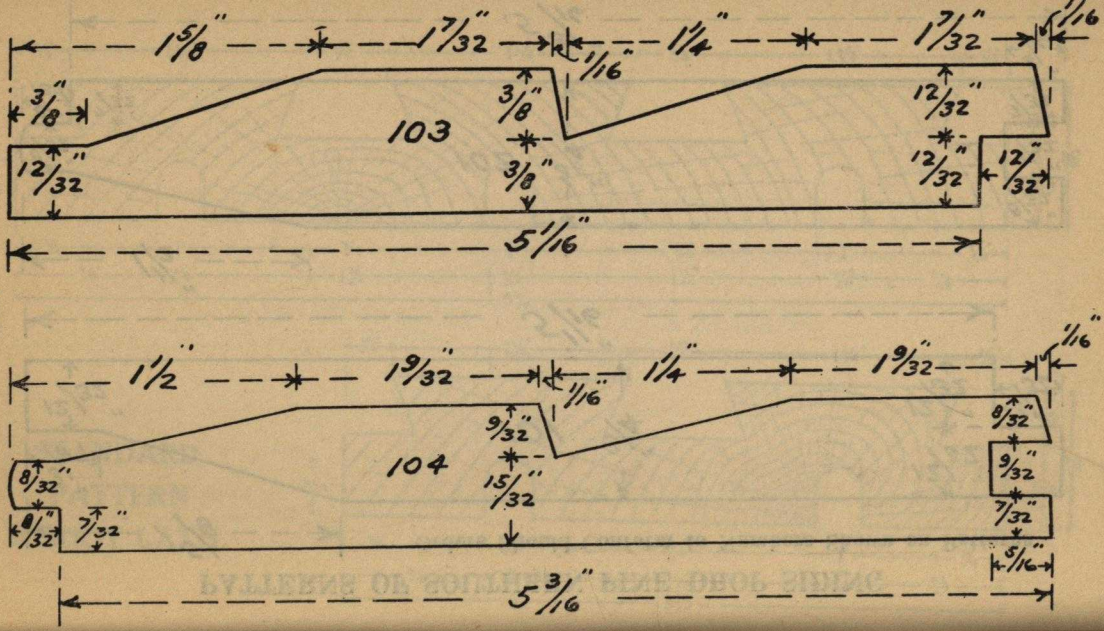
STANDARD PATTERN BYRKIT LATH

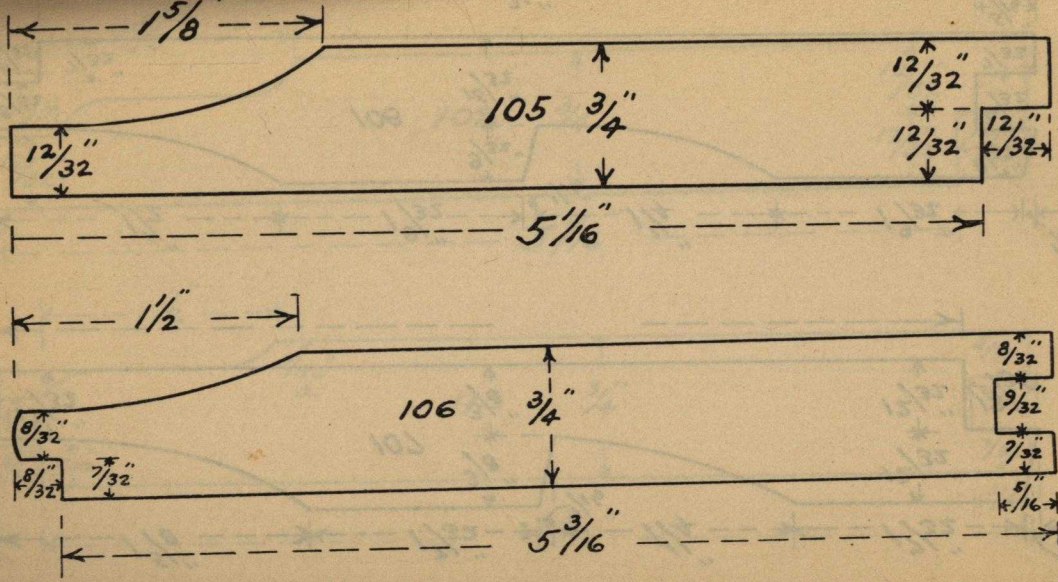


PATTERNS OF SOUTHERN PINE DROP SIDING

Orders Should Conform to Numbers Shown on Patterns




1 5/8"
1 7/32"
1/16"
1 1/4"
1 7/32"
1/16"
3/8"
103
3/8"
12/32"
3/8"
12/32"
12/32"
12/32"
5 1/16"
1 1/2"
1 9/32"
1/16"
1 1/4"
1 9/32"
1/16"
9/32"
104
8/32"
15/32"
8/32"
9/32"
8/32"
7/32"
7/32"
5/16"
5 3/16"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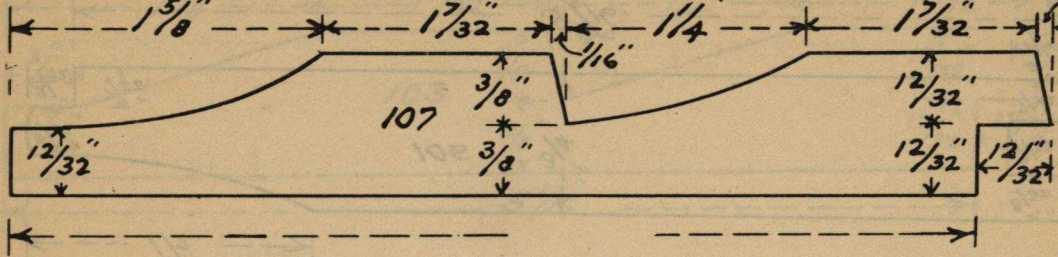
5 3/16"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107
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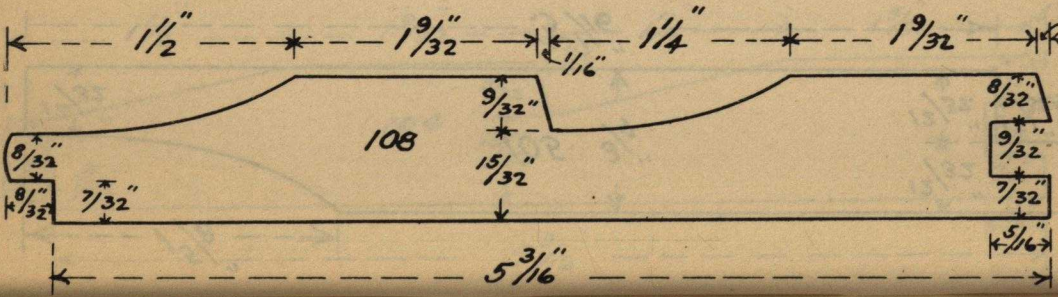
12/32"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1 9/32"
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108
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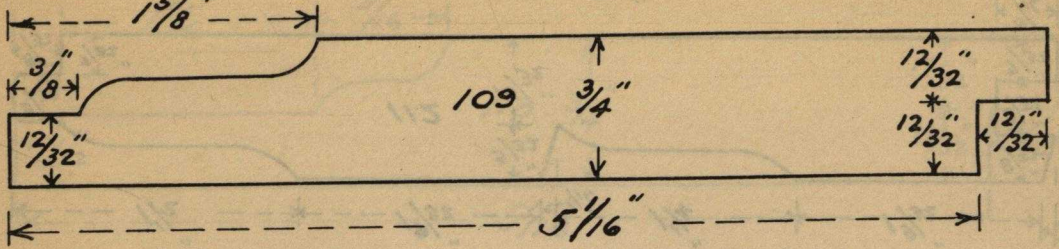
5/16"
5 3/16"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109
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12/32"
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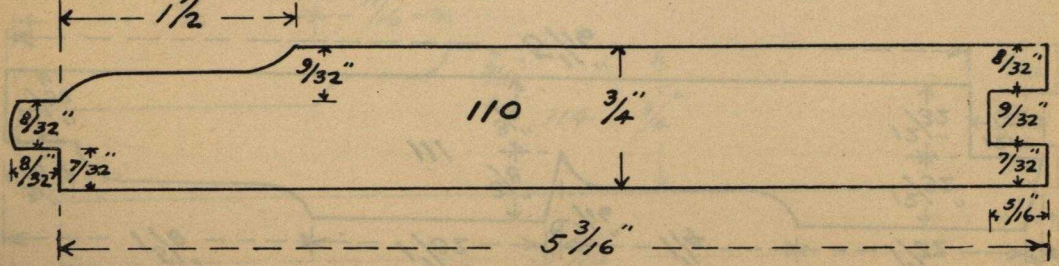
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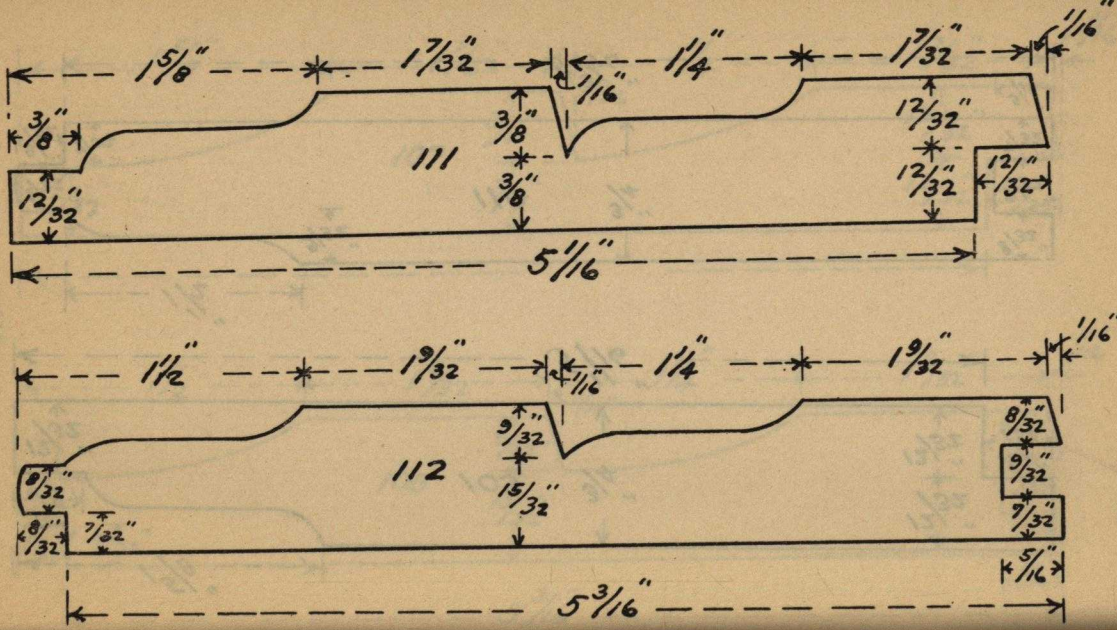
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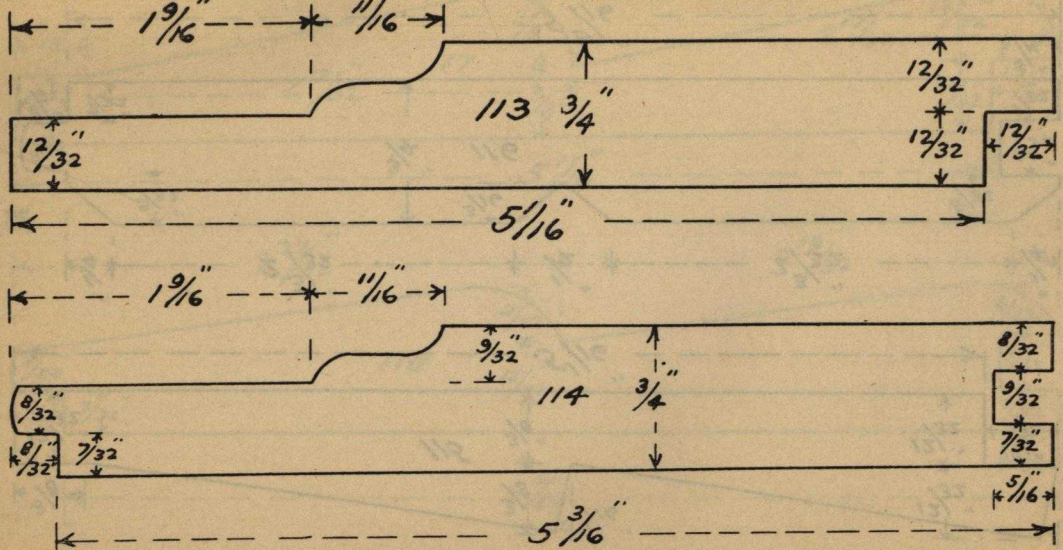
5/16"
5 3/16"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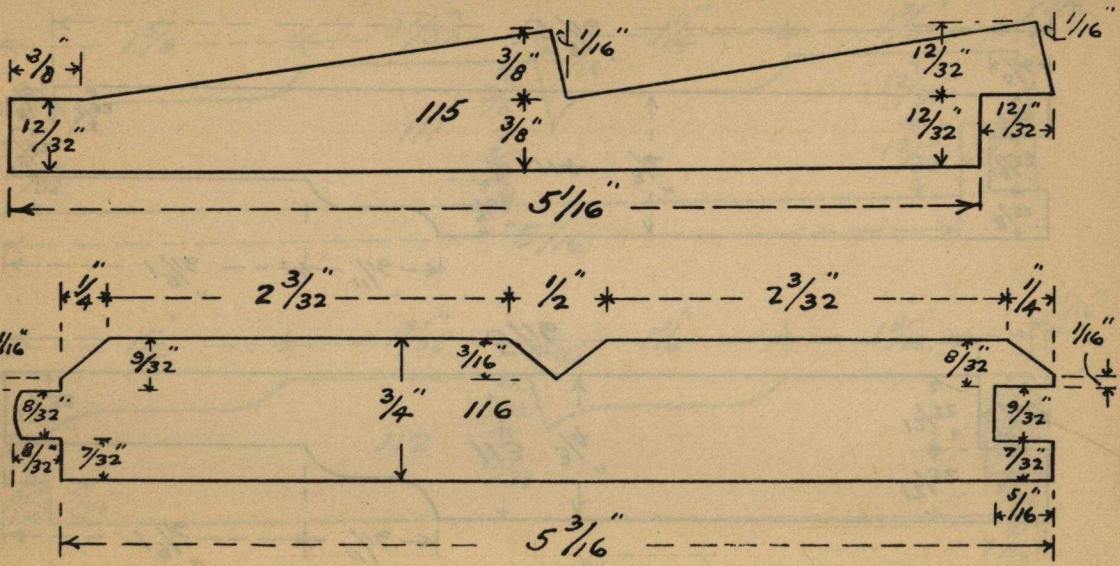
3/8"
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115
3/8"
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12/32"
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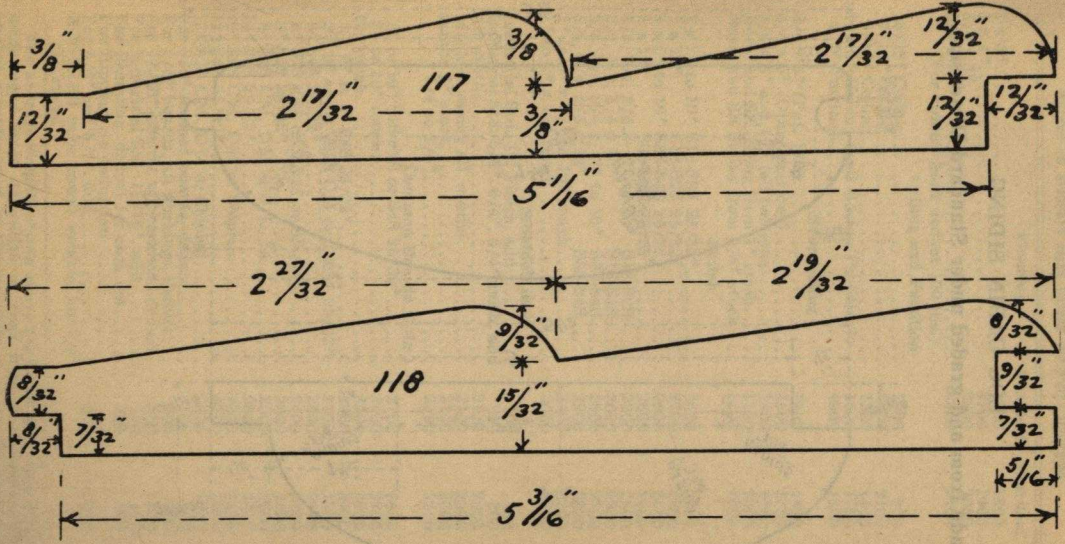
7/32"
7/32"
5/16"
5 3/16"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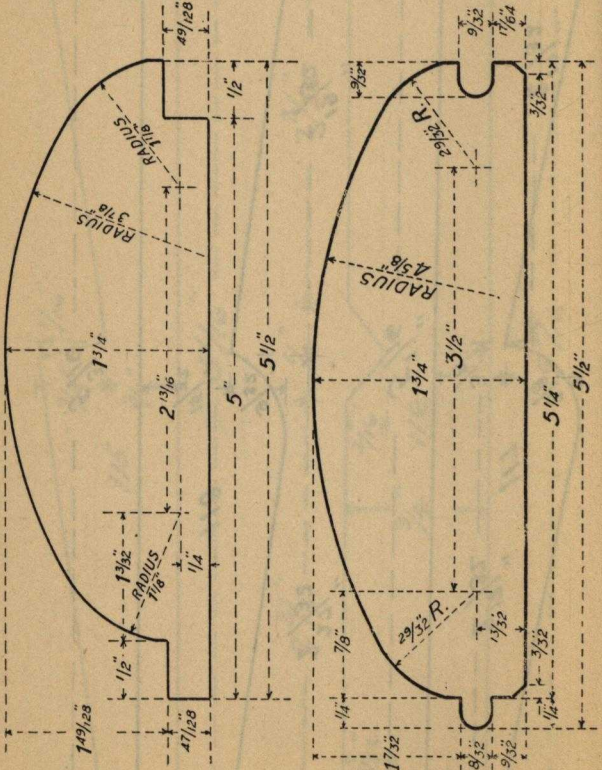
12/32"
5 1/16"
2 27/32"
2 19/32"
9/32"
8/32"
118
15/32"
8/32"
8/32"
9/32"
7/32"
7/32"
5/16"
5 3/16"

LOG CABIN SIDING

Made from and graded under Standard Dimension.



AVERAGE WEIGHTS OF SOUTHERN PINE

Worked To Standard Sizes Unless Otherwise Indicated

Flooring	Longleaf	Shortleaf
1 x 3"	2000	1800
1 x 4"	2100	1900
5/4 x 3"	2200	2000
5/4 x 4"	2300	2100
(For Hollow back deduct 100 lbs.)		
Ceiling and Partition		
5/16" Ceiling	1000	900
7/16" Ceiling	1200	1100
9/16" Ceiling	1500	1400
11/16" Ceiling (and Boston Partition)	1800	1700
3/4" Partition	1900	1800
Drop Siding		
3/4 x 6" (Pat. 116)	1900	1800
3/4 x 6" (Other patterns)	1800	1700
3/4 x 8" and 10" (all patterns)	1900	1800
Bevel and SE Siding from 1" stock	1100	1000
Bevel and SE Siding from 5/4" stock	1400	1300
Finish		
1 x 2" to 10" S1S-S2S 25/32"	2600	2500
1 x 12" S1S-S2S 25/32"	2700	2600
1 x 2" to 10" S3S-S4S 25/32"	2500	2400
1 x 12" S3S-S4S 25/32"	2600	2500
5/4, 6/4, 8/4 x 2" to 10" S1S-S2S	2900	2800
5/4, 6/4, 8/4 x 12" S1S-S2S	3000	2900
5/4, 6/4, 8/4 x 2" to 10" S3S-S4S	2800	2700
5/4, 6/4, 8/4 x 12" S3S-S4S	2900	2800
1" to 2" x 2" to 10" rough	3400	3200
1" to 2" x 12" rough	3500	3300
Moulded Base		
Industrial Std. 1", Finish, add	100	100
Industrial Std. 5/4", 6/4", 8/4" finish, add	200	200
All widths	2100	2000
Moulded casing all widths	2100	2000
Jambs 1" stock	2100	2000
5/4 to 8/4"	2300	2200
Common Boards (1-in)		
2" to 10" S1S-S2S or S4S 25/32"	2700	2500
2" to 10" rough	3400	3200
12" rough	3500	3300
1 x 2" to 4" S4S 25/32"	2600	2400
2", 3" and 4" S2S CM or D&M 25/32"	2100	1900
6" S4S 25/32"	2600	2400
6" S2S CM or D&M or Shiplap	2400	2200
8" S4S 25/32"	2600	2400
8" S2S CM, DM or S/L	2500	2300
10" S4S 25/32"	2600	2400
10" S2S CM, DM or Shiplap	2500	2300
12" S4S 25/32"	2700	2500
12" S2S CM, DM or Shiplap	2600	2400
For 3/4" dressed boards, deduct	100	100
For 5/8" boards, all workings, deduct	500	500
For 11/16" boards, all workings, deduct	300	300
For Industrial Std .13/16", add	100	100
For Resawing, deduct for each cut	200	200
For Ripping, no deduction		
For 5/4" and 6/4", add	300	300
ROOFERS take board weights for 3/4" thickness.		

The average weights shown above are based upon test weights made upon large quantities of each item of Southern Pine lumber manufactured by the subscribers to the Southern Pine Association.

AVERAGE WEIGHTS OF SOUTHERN PINE

Worked To Standard Sizes Unless Otherwise Indicated

Dimension, Factory Flooring, Roof Decking	Longleaf	Shortleaf
2 x 2″ to 2 x 8″ Rough	3400	3300
2 x 2″ to 2 x 8″ Dressed to 1 5/8″	2700	2500
2 x 10″ x 12″ Rough	3500	3400
2 x 10″ x 2 x 12″ Dressed to 1 5/8″	2800	2600
For D&M, SL and Grooved for splines, deduct from S4S wts	200	200
For Green Dimension, rough, all widths	4500	4500
For Green Dimension, dressed 1 5/8″	3800	3800
For Indust. Std., 1 3/4″ green or dry, all workings, add to Std. wt	400	400
Timbers, Heavy Joist and Plank, thicker than 2 Inch—Long and/or Shortleaf	**Green**	**Green**
Rough	4500	4500
S4S 1/4 ″scant	4200	4200
S4S 3/8 ″scant	4000	4000
S4S 1/2 ″scant	3800	3800
T&G, Shiplap and Grooved for Splines, deduct	300	300
Car Siding, Lining, Roofing	**Longleaf**	**Shortleaf**
4″ and 6″ 13/16 T&G	2200	2200
4″ and 6″ 13/16 S2S	2600	2600
For 25/32″ thickness, deduct	100	100
Longitudinal Sheathing and Stock Car Slats		
4″ T&G 1 3/4″	2400	2400
4″ T&G 1 5/8″	2300	2300
4″ T&G 1 1/2″	2100	2100
4″ S2S to 1 3/4″	2900	2900
4″ S2S to 1 5/8″	2700	2700
4″ S2S to 1 1/2″	2500	2500
6″ T&G to 1 3/4″	2500	2500
6″ T&G to 1 5/8″	2400	2400
6″ T&G to 1 1/2″	2200	2200
6″ S2S to 1 3/4″	2900	2900
6″ S2S to 1 5/8″	2700	2700
6″ S2S to 1 1/2″	2500	2500
Car Decking		
6″ and 8″, S2S to 1 3/4, 2 1/2, 2 3/4 and 3″, Dry	3200	3000
6″ and 8″, S2S to 1 3/4, 2 1/2, 2 3/4 and 3″ Green	4200	4200
6″ and 8″, S2S and T&G to 2 1/2, 2 3/4 and 3″ Dry	2900	2700
6″ and 8″, S2S and T&G to 1 3/4, 2 1/2, 2 3/4 and 3″ Green	3500	3500
6″ and 8″, S2S and T&G to 1 3/4″ Dry	2800	2600
6″ and 8″, S1S 1/8″ scant Dry	3400	3200
Rough Green	4500	4500
Rough Dry	3600	3400
Miscellaneous		
Plastering Lath, 48″ KD	500	500
Plastering Lath, 48″ Green	1000	1000
Plastering Lath, 32″KD	340	340
Fence Lath, 1/2 x 1 1/2 x 48″ KD	800	800
Bed Slats, 1 x 3 x 4 ft. 6 in., per set of 8	20	20
Bed Slats, 1 x 3 x 3 ft. 3 in., per set of 8	15	15
Byrkit Lath, 4″ or 6″	1800	1600

The average weights shown above are based upon test weights made upon large quantities of each item of Southern Pine lumber manufactured by the subscribers to the Southern Pine Association.

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